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(FILE 'HOME' ENTERED AT 16:35:21 ON 29 MAR 2007)

FILE 'CAPLUS, MEDLINE' ENTERED AT 16:35:37 ON 29 MAR 2007

L1	0 S	PECTIN? (P) ?OLIGOSACCHARIDE? (P) AUTOIMMUNE?
L2	0 S	ALGIN? (P) ?OLIGOSACCHARIDE? (P) AUTOIMMUNE?
L3	7 S	ALGIN? (P) ?OLIGOSACCHARIDE? (P) ALLERG?
L4	23 S	ALGIN? (P) ?OLIGOSACCHARIDE? (P) IMMUN?
L5	17 S	L4 NOT L3
L6	27 S	PECTIN? (P) ?OLIGOSACCHARIDE? (P) IMMUN?
L7	14 S	URONIC ACID (P) ?OLIGOSACCHARIDE? (P) IMMUN?
L8	0 S	L7 AND NEURT?
L9	2 S	L7 AND NEUT?
L10	12 S	L7 NOT L9
L11	4 S	URONIC ACID (P) ?OLIGOSACCHARIDE? (P) ALLERG?
L12	270 S	?OLIGOSACCHARIDE? (P) ALLERG?
L13	1 S	?OLIGOSACCHARIDE? (P) ALLERG? (P) PECTI?
L14	7 S	?OLIGOSACCHARIDE? (P) ALLERG? (P) ALGIN?
L15	0 S	?FRUCTAN? (P) ALLERG? (P) ALGIN?
L16	3 S	?FRUCTAN? (P) ALLERG?
L17	127 S	?DEXTRIN? (P) ALLERG?
L18	2 S	L17 AND ?URONIC ACID
L19	3 S	?DEXTRIN? (P) ALLERG? (P) VACCIN?
L20	1 S	L12 AND POLYMERIZ?
L21	0 S	?URONIC ACID (P) ?OLIGOSACCHARIDE? (P) ALLERG? (P) ALGIN?
L22	5 S	?URONIC ACID (P) ?OLIGOSACCHARIDE? (P) ALLERG?
L23	10 S	XYLOOLIGOSACCHARIDE? (P) ALLERG?
L24	13 S	L12 AND COMPOSITION
L25	14 S	L12 AND MIXTUR?

L3 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:40604 CAPLUS

DOCUMENT NUMBER: 146:92990

TITLE: Oral administration of alginic acid oligosaccharide suppresses IgE production and inhibits the induction of oral tolerance

AUTHOR(S): Uno, Tsukasa; Hattori, Makoto; Yoshida, Tadashi

CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology, 3-5-8 Saiwai-cho, Fuchu, Tokyo, 183-8509, Japan

SOURCE: Bioscience, Biotechnology, and Biochemistry (2006), 70(12), 3054-3057

CODEN: BBBIEJ; ISSN: 0916-8451

PUBLISHER: Japan Society for Bioscience, Biotechnology, and Agrochemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We have found that alginic acid oligosaccharide (ALGO) enhanced Th1 by promoting IL-12 production, suggesting that ALGO can be applied as an anti-allergic food. In this study we examined both pos. and neg. functions of ALGO. First we investigated the anti-allergic activity of ALGO, as a pos. function, when orally administered. IgE production was significantly inhibited in mice fed ALGO as compared to control mice. This result indicates that ALGO had anti-allergic activity even when orally administered. On the other hand, we also found a neg. function of ALGO. Oral co-administration of a protein antigen and ALGO inhibited the induction of oral tolerance to the protein. These data indicate the potential of ALGO as an anti-allergic food material and the necessity of further examination to determine a safe method application.

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:684857 CAPLUS

DOCUMENT NUMBER: 143:210336

TITLE: Reduced T Cell Response to  $\beta$ -Lactoglobulin by Conjugation with Acidic Oligosaccharides

AUTHOR(S): Yoshida, Tadashi; Sasahara, Yoshimasa; Miyakawa, Shunpei; Hattori, Makoto

CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology, Tokyo, Japan

SOURCE: Journal of Agricultural and Food Chemistry (2005), 53(17), 6851-6857

CODEN: JAFCAU; ISSN: 0021-8561

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We have previously reported that the conjugation of  $\beta$ -lactoglobulin ( $\beta$ -LG) with alginic acid oligosaccharide (ALGO) and phosphoryl oligosaccharides reduced the immunogenicity of  $\beta$ -LG. In addition, those conjugates showed higher thermal stability and improved emulsifying properties than those of native  $\beta$ -LG. We examine in this study the effect of conjugation on the T cell response. Our results demonstrate that the T cell response was reduced when mice were immunized with the conjugates. The findings obtained from an experiment using overlapping synthetic peptides show that novel epitopes were not generated by conjugation. One of the mechanisms for the reduced T cell response to the conjugates was found to be the reduced susceptibility of the conjugates to processing enzymes for antigen presentation. We further clarify that the  $\beta$ -LG-ALGO conjugate modulated the immune response to Th1 dominance. We consider that this property of the  $\beta$ -LG-ALGO conjugate would be effective for preventing food allergy as well

as by its reduced immunogenicity. Our observations indicate that the method used in this study could be applied to various protein allergens to achieve reduced allergenicity with multiple improvements in their properties.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:962502 CAPLUS

DOCUMENT NUMBER: 142:196393

TITLE: Reduced immunogenicity of  $\beta$ -lactoglobulin conjugation with alginic oligosaccharide

AUTHOR(S): Hattori, Makoto; Miyakawa, Shunpei; Ohama, Yukie; Kawamura, Hiroyuki; Yoshida, Tadashi; Takahashi, Koji  
CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology, Fuchu, Tokyo, 183-8509, Japan

SOURCE: Animal Cell Technology: Basic & Applied Aspects, Proceedings of the Annual Meeting of the Japanese Association for Animal Cell Technology, 15th, Fuchu, Japan, Nov. 11-15, 2002 (2003), Meeting Date 2002, 273-276. Editor(s): Yagasaki, Kazumi. Kluwer Academic Publishers: Dordrecht, Neth.  
CODEN: 69GBKC; ISBN: 1-4020-1970-X

DOCUMENT TYPE: Conference

LANGUAGE: English

AB The structure and the possibility of reducing the immunogenicity of  $\beta$ -lactoglobulin ( $\beta$ -LG)-alginic oligosaccharide (ALGO) conjugate, prepared by the Maillard reaction, were investigated. Results demonstrate reduced immunogenicity of  $\beta$ -LG by its conjugated ALGO without inducing novel immunogenicity. This conjugation method can bring about improvements in the emulsifying ability and aggregation characteristics of  $\beta$ -LG. This method is valuable in that the obtained conjugate is edible with multiple improved functions such as improved functional properties and reduced immunogenicity.

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:286191 CAPLUS

DOCUMENT NUMBER: 141:360351

TITLE: Alginic Acid Oligosaccharide Suppresses Th2 Development and IgE Production by Inducing IL-12 Production

AUTHOR(S): Yoshida, Tadashi; Hirano, Aki; Wada, Hanae; Takahashi, Koji; Hattori, Makoto

CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology, Tokyo, Japan

SOURCE: International Archives of Allergy and Immunology (2004), 133(3), 239-247  
CODEN: IAAIEG; ISSN: 1018-2438

PUBLISHER: S. Karger AG

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Background: Since allergen-specific IgE is directly involved in the type I allergic reaction, development of a method for inhibiting Th2 responses which lead to the induction of IgE production would be a useful approach for preventing allergic disorders. The ability and mechanism of alginic acid oligosaccharide (ALGO), an oligosaccharide obtained from natural edible polysaccharide, for suppressing Th2 responses was examined in detail. Methods: Lymph node cells obtained from  $\beta$ -lactoglobulin ( $\beta$ -LG)-primed BALB/c mice were cultured in vitro with an antigen for 3 days in the absence or presence of ALGO. The amount of cytokine in each

culture supernatant was measured. The effect of ALGO on Th2 development was also examined by using ovalbumin specific T cell receptor transgenic mice. Antibody production in the serum of BALB/c mice that had been immunized with  $\beta$ -LG or  $\beta$ -LG plus ALGO was investigated. Results: The production of IFN- $\gamma$  induced by antigen stimulation was upregulated by ALGO in a dose-dependent manner. IL-12 production was also enhanced by ALGO, and the addition of the anti-IL-12 antibody to the culture abrogated the effect of ALGO. IL-4 production by antigen-stimulated splenocytes of transgenic mice was suppressed in the presence of ALGO. Furthermore, IgE production by ALGO-treated mice was significantly inhibited compared with control mice. Conclusions: These results indicate that ALGO suppressed antigen-induced Th2 development by inducing IL-12 production. ALGO also inhibited in vivo IgE production. These findings suggest that ALGO is expected to be an edible anti-allergic agent.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 7 MEDLINE on STN  
 ACCESSION NUMBER: 2006748985 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 17151448  
 TITLE: Oral administration of alginic acid oligosaccharide suppresses IgE production and inhibits the induction of oral tolerance.  
 AUTHOR: Uno Tsukasa; Hattori Makoto; Yoshida Tadashi  
 CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology.  
 SOURCE: Bioscience, biotechnology, and biochemistry, (2006 Dec) Vol. 70, No. 12, pp. 3054-7. Electronic Publication: 2006-12-07.  
 Journal code: 9205717. ISSN: 0916-8451.  
 PUB. COUNTRY: Japan  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE) (RESEARCH SUPPORT, NON-U.S. GOV'T)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200703  
 ENTRY DATE: Entered STN: 27 Dec 2006  
 Last Updated on STN: 6 Mar 2007  
 Entered Medline: 5 Mar 2007  
 AB We have found that alginic acid oligosaccharide (ALGO) enhanced Th1 by promoting IL-12 production, suggesting that ALGO can be applied as an anti-allergic food. In this study we examined both positive and negative functions of ALGO. First we investigated the anti-allergic activity of ALGO, as a positive function, when orally administered. IgE production was significantly inhibited in mice fed ALGO as compared to control mice. This result indicates that ALGO had anti-allergic activity even when orally administered. On the other hand, we also found a negative function of ALGO. Oral co-administration of a protein antigen and ALGO inhibited the induction of oral tolerance to the protein. These data indicate the potential of ALGO as an anti-allergic food material and the necessity of further examination to determine a safe method application.

L3 ANSWER 6 OF 7 MEDLINE on STN  
 ACCESSION NUMBER: 2005438772 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 16104810  
 TITLE: Reduced T cell response to beta-lactoglobulin by conjugation with acidic oligosaccharides.  
 AUTHOR: Yoshida Tadashi; Sasahara Yoshimasa; Miyakawa Shunpei; Hattori Makoto  
 CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology, Tokyo, Japan.  
 SOURCE: Journal of agricultural and food chemistry, (2005 Aug 24) Vol. 53, No. 17, pp. 6851-7.



Journal code: 0374755. ISSN: 0021-8561.  
PUB. COUNTRY: United States  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
(RESEARCH SUPPORT, NON-U.S. GOV'T)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 200509  
ENTRY DATE: Entered STN: 18 Aug 2005  
Last Updated on STN: 30 Sep 2005  
Entered Medline: 29 Sep 2005

AB We have previously reported that the conjugation of beta-lactoglobulin (beta-LG) with alginic acid oligosaccharide (ALGO) and phosphoryl oligosaccharides reduced the immunogenicity of beta-LG. In addition, those conjugates showed higher thermal stability and improved emulsifying properties than those of native beta-LG. We examine in this study the effect of conjugation on the T cell response. Our results demonstrate that the T cell response was reduced when mice were immunized with the conjugates. The findings obtained from an experiment using overlapping synthetic peptides show that novel epitopes were not generated by conjugation. One of the mechanisms for the reduced T cell response to the conjugates was found to be the reduced susceptibility of the conjugates to processing enzymes for antigen presentation. We further clarify that the beta-LG-ALGO conjugate modulated the immune response to Th1 dominance. We consider that this property of the beta-LG-ALGO conjugate would be effective for preventing food allergy as well as by its reduced immunogenicity. Our observations indicate that the method used in this study could be applied to various protein allergens to achieve reduced allergenicity with multiple improvements in their properties.

L3 ANSWER 7 OF 7 MEDLINE on STN  
ACCESSION NUMBER: 2004157532 MEDLINE  
DOCUMENT NUMBER: PubMed ID: 14976392  
TITLE: Alginic acid oligosaccharide suppresses Th2 development and IgE production by inducing IL-12 production.  
AUTHOR: Yoshida Tadashi; Hirano Aki; Wada Hanae; Takahashi Koji; Hattori Makoto  
CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology, Tokyo, Japan..  
tyoshi@cc.tuat.ac.jp  
SOURCE: International archives of allergy and immunology, (2004 Mar) Vol. 133, No. 3, pp. 239-47. Electronic Publication: 2004-02-16.  
Journal code: 9211652. ISSN: 1018-2438.  
PUB. COUNTRY: Switzerland  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
(RESEARCH SUPPORT, NON-U.S. GOV'T)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 200404  
ENTRY DATE: Entered STN: 31 Mar 2004  
Last Updated on STN: 28 Apr 2004  
Entered Medline: 27 Apr 2004

AB BACKGROUND: Since allergen-specific IgE is directly involved in the type I allergic reaction, development of a method for inhibiting Th2 responses which lead to the induction of IgE production would be a useful approach for preventing allergic disorders. The ability and mechanism of alginic acid oligosaccharide (ALGO), an oligosaccharide obtained from natural edible polysaccharide, for suppressing Th2 responses was examined in detail. METHODS: Lymph node cells obtained from beta-lactoglobulin (beta-LG)-primed BALB/c mice were cultured in vitro with an antigen for 3 days in the absence or presence of ALGO. The amount of cytokine in each culture supernatant was measured. The effect of ALGO on Th2 development

was also examined by using ovalbumin specific T cell receptor transgenic mice. Antibody production in the serum of BALB/c mice that had been immunized with beta-LG or beta-LG plus ALGO was investigated. RESULTS: The production of IFN-gamma induced by antigen stimulation was upregulated by ALGO in a dose-dependent manner. IL-12 production was also enhanced by ALGO, and the addition of the anti-IL-12 antibody to the culture abrogated the effect of ALGO. On the other hand, IL-4 production by antigen-stimulated splenocytes of transgenic mice was suppressed in the presence of ALGO. Furthermore, IgE production by ALGO-treated mice was significantly inhibited compared with control mice. CONCLUSIONS: These results indicate that ALGO suppressed antigen-induced Th2 development by inducing IL-12 production. ALGO also inhibited in vivo IgE production. These findings suggest that ALGO is expected to be an edible anti-allergic agent.

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L5 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:538752 CAPLUS

DOCUMENT NUMBER: 140:3887

TITLE: Development, characterization and application of monoclonal antibody against vibrio alginolyticus lipopolysaccharide

AUTHOR(S): Chen, Xiaoyan; Hu, Chaoqun; Ren, Chunhua; Chen, Chang

CORPORATE SOURCE: South China Sea Institute of Oceanology, Chinese Academy of Sciences, Canton, 510301, Peop. Rep. China

SOURCE: Gaojishu Tongxun (2002), 12(11), 90-95

CODEN: GTONE8; ISSN: 1002-0470

PUBLISHER: Gaojishu Tongxun Zazhishe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The monoclonal antibody (Mab) 4D5 against lipopolysaccharide from a pathogenic *Vibrio alginolyticus* VAF01 was produced and characterized. 4D5 reacted with *V. proteolyticus*, *V. harveyi*, *V. splendidus*, *Shewanella* algae, and 5 *V. alginolyticus* isolates among 13 bacteria species tested. Immunoblotting after SDS-PAGE showed that 4D5 was specific for core-oligosaccharide of VAF01 and VAF02 (another pathogenic *V. alginolyticus*) LPS, but reacted with VAF02 LPS after LPS oxidation by periodate acid, implying that some components of VAF01 and VAF02 LPS may be different. The LPS released into cultured medium in 48 h was not more than 57 µg/mL semi-quantitated by inhibition ELISA, which was by far less than the amount necessary for fish lethality.

L5 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:797184 CAPLUS

DOCUMENT NUMBER: 138:201593

TITLE: Oligoalginate recognition and oxidative burst play a key role in natural and induced resistance of sporophytes of Laminariales

AUTHOR(S): Kuepper, Frithjof C.; Mueller, Dieter G.; Peters,

Akira F.; Kloareg, Bernard; Potin, Philippe

CORPORATE SOURCE: UMR 1931, Station Biologique, CNRS-Laboratoires

Goemar, Roscoff, F-29682, Fr.

SOURCE: Journal of Chemical Ecology (2002), 28(10), 2057-2081

CODEN: JCECD8; ISSN: 0098-0331

PUBLISHER: Kluwer Academic/Plenum Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Forty-five species of brown algae (Phaeophyceae) were surveyed for their capacity to respond by an oxidative burst to challenges with alginate oligosaccharides. Intertidal frondose brown algae (Fucales) constitutively released high quantities of peroxide. The capacity to recognize oligoguluronates and to react with an oxidative burst was confined to alginate-rich taxa with complex thallus morphol., epitomized by the sporophytes of Laminariales. When kelp sporophytes were impaired in their capacity to perform an oxidative burst by the NAD(P)H oxidase inhibitor diphenylene iodonium, they were readily degraded by their bacterial epiflora. Thus, in these algae, the oxidative response is an essential element of natural resistance. We also report on the establishment of a well-defined exptl. system for investigations on kelp immunity, with *Laminaria digitata* as the host and its phaeophycean endophyte, *Laminariocolax tomentosoides*, as the pathogen. We found that an alginate-triggered oxidative burst significantly induces resistance in *Laminaria digitata* against infection. From these findings we infer that oligoalginate signals are important cues in the interaction between laminariales kelps and potential pathogens.

REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 9 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:329367 CAPLUS  
DOCUMENT NUMBER: 136:314970  
TITLE: Preparation for curing and preventing of animal's disease using alginic oligosaccharides derivatives  
INVENTOR(S): Jang, Maan; Kim, Kwang Yoon; Kim, Hee Kyung; Shin, Kyung Soon; Lee, Taek Gyun; Lee, Jong Soo; Jeong, Seung Ki; Kang, Nam Hyun; Ko, Naa Hyung; Kim, Hee Sun  
PATENT ASSIGNEE(S): Korea Ocean Research and Development Institute, S. Korea; Ecobio Inc.  
SOURCE: Repub. Korean Kongkae Taeho Kongbo, No pp. given  
CODEN: KRXXA7  
DOCUMENT TYPE: Patent  
LANGUAGE: Korean  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
KR 2000032631	A	20000615	KR 1998-49157	19981113
PRIORITY APPLN. INFO.:			KR 1998-49157	19981113
AB A preparation for curing and preventing animal's diseases using alginic oligosaccharides derivs. is provided, which cures and prevents animal's diseases directly, and also induces amplification of immune-related materials in livestock to improve anti-disease capacity and to enhance productivity. The preparation using alginic oligosaccharides derivs. is manufactured by the following process: extracting alginic acid from sea tangle using organic solvents, methanol and alginase; manufacturing alginic oligosaccharides derivs. using chemical method or enzymic method; separating high-antibiotic alginic oligosaccharides derivs. by solubility difference and freeze-drying to make alginic oligosaccharide derivs. to be powder.				

L5 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:142853 CAPLUS  
DOCUMENT NUMBER: 136:198908  
TITLE: Method of extensive culture of antigen-specific cytotoxic T cells  
INVENTOR(S): Sagawa, Hiroaki; Ideno, Mitsuko; Kato, Ikunoshin  
PATENT ASSIGNEE(S): Takara Shuzo Co., Ltd., Japan  
SOURCE: PCT Int. Appl., 99 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002014481	A1	20020221	WO 2001-JP7032	20010815
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2001078734	A5	20020225	AU 2001-78734	20010815
EP 1312670	A1	20030521	EP 2001-956894	20010815
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				



TW 235764	B	20050711	TW 2001-90120130	20010816
US 2004115809	A1	20040617	US 2003-344534	20030212
PRIORITY APPLN. INFO.:			JP 2000-247072	A 20000816
			WO 2001-JP7032	W 20010815

AB A method of inducing, maintaining and extensively culturing CTLs (cytotoxic T cells), which sustain an antigen-specific cytotoxicity at a high level and are appropriately usable in adoptive immunotherapy, by using at least one compound selected from the group consisting of acidic polysaccharides, acidic oligosaccharides, acidic monosaccharides and salts thereof as the active ingredient. Examples of the above-described compound include fucoidan, heparin, alginic acid, chondroitin sulfate A, chondroitin sulfate B, pectic acid, hyaluronic acid, fucoidan degradation products, sulfated glucose, sulfated fucose and salts thereof.

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 11 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2001:449805 CAPLUS  
 DOCUMENT NUMBER: 135:45276  
 TITLE: Galactomannan Oligosaccharide and procedure for their production as well as their use  
 INVENTOR(S): Klingeberg, Michael; Kunz, Markwart; Ludwig, Eva; Munir, Mohammad; Rittig, Frank; Vogel, Manfred  
 PATENT ASSIGNEE(S): Suedzucker Aktiengesellschaft Mannheim/Ochsenfurt, Germany  
 SOURCE: Ger. Offen., 12 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19961182	A1	20010621	DE 1999-19961182	19991218
DE 19961182	B4	20060112		
CA 2394640	A1	20010621	CA 2000-2394640	20001212
WO 2001044489	A2	20010621	WO 2000-EP12574	20001212
WO 2001044489	A3	20020214		
W: AU, CA, IL, JP, KR, MX, RU, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
EP 1303632	A2	20030423	EP 2000-991171	20001212
EP 1303632	B1	20041006		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
JP 2003516757	T	20030520	JP 2001-545566	20001212
AT 278799	T	20041015	AT 2000-991171	20001212
AU 779681	B2	20050203	AU 2001-31575	20001212
PT 1303632	T	20050228	PT 2000-991171	20001212
ES 2228661	T3	20050416	ES 2000-991171	20001212
RU 2281331	C2	20060810	RU 2002-119059	20001212
US 2003162300	A1	20030828	US 2002-168044	20021219

PRIORITY APPLN. INFO.: DE 1999-19961182 A 19991218  
 WO 2000-EP12574 W 20001212

AB A process is provided for the manufacture of galactomannan derived oligosaccharides which can hinder infectious diseases, colon cancer, osteoporosis and stimulate the immune system. Thus, Bacillus subtilis cells immobilized in calcium alginate were employed to hydrolyze guar gum forming oligosaccharides with a d.p. less than 15 residues preferably between 2 and 7 residues. The resulting oligosaccharides were partially purified by ion exchange chromatog.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 12 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:449938 CAPLUS

DOCUMENT NUMBER: 133:317031

TITLE: Immune stimulating properties of di-equatorially  $\beta(1\rightarrow4)$  linked polyuronides

AUTHOR(S): Skjak-Braek, G.; Flo, T.; Halaas, O.; Espevik, T.

CORPORATE SOURCE: Institute of Biotechnology and Institute of Cancer Research and Molecular, Norwegian University of Science and Technology, Trondheim, N-7005, Norway

SOURCE: Proceedings of the Phytochemical Society of Europe (2000), 44 (Bioactive Carbohydrate Polymers), 85-93  
CODEN: APPEDR; ISSN: 0309-9393

PUBLISHER: Kluwer Academic Publishers

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review with 15 refs. The biol. activities of complex carbohydrates and polysaccharides have traditionally been attributed to short oligosaccharide structures. In the last decade several reports have been publishes suggesting that biol. activity, i.e antitumor activity as well as the adjuvant effect of polysaccharides of various structures and origins is depending upon certain macromol. structures. The best known example is the  $\beta$ -1-3-linked glucan. We have previously found that certain alginates induce human monocytes to produce TNF, IL-1 and IL-6, and that the cytokine inducing ability depends on the mannuronic acid (M) content as well as the mol. weight of the alginate. Our data demonstrate that alginates enriched in mannuronic acid were the cytokine inducing polysaccharides whereas guluronic acid residues did not stimulate monocytes to produce cytokines. Similar effects are found for other polyuronides containing  $\beta$ -1-4 di-equatorial linked sequences. High M-alginate and lipopolysaccharide (LPS) were found to stimulate human monocytes by similar mechanism, which involved the CD14 LPS/LBP receptor. The mechanism for the interaction between the polyuronides and the cytokine producing cells will be discussed. Defined polysaccharides, which specifically stimulate the non-specific immune system, may be important agents for treatment of various infectious diseases. The potent cytokine inducing ability of  $\beta$ 1-4 linked uronic acid polymers on monocytes in vitro implicates possible interesting effects in vivo. The effect of high M alginate and C-6 oxidized cellulose in various in vivo models, ranging from bacterial sepsis in rodents to adjuvant effects in marine fishes have been tested.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 13 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:28639 CAPLUS

DOCUMENT NUMBER: 133:16812

TITLE: Algal oligosaccharides as functional foods: in vitro study of their cellular and fermentative effects

AUTHOR(S): Michel, Catherine; Benard, Claudine; Lahaye, Marc; Formaglio, Damien; Kaeffer, Bertrand; Quemener, Bernard; Berot, Serge; Yvin, Jean-Claude; Blottiere, Herve M.; Cherbut, Christine; Blassel, Christian; Blat, Sophie; Bonnet, Christian; Coutret, Jocelyne; David, Agnes; Doulay, Frank; Kozlowski, Francoise; Rival, Martine; Yu, Yan-Qian

CORPORATE SOURCE: Centre de recherche en nutrition humaine, Unite fonctions digestives et de nutrition humaine, Institut national de la recherche agronomique, Nantes, 44316, Fr.

SOURCE: Sciences des Aliments (1999), 19(3/4), 311-332

CODEN: SCALDC; ISSN: 0240-8813

PUBLISHER: Lavoisier Abonnements  
DOCUMENT TYPE: Journal  
LANGUAGE: French

AB Algal polysaccharides are indigestible and exhibit unusual biochem. and fermentative characteristics from which stem interesting biol. effects such as antitumoral, immunostimulating and/or prebiotic effects. In this study, the authors aimed to determine whether oligosaccharides obtained from alginates and laminarans also have such biol. activities and can thus be considered as functional foods. The chemical structures of the oligosaccharides were determined using NMR. Both the fermentation and the effects on microbial populations of oligo-alginates and oligo-laminarans were investigated using batch incubations with, and continuous culture of, human faecal bacteria. The kinetic and intensity of fermentation were measured by continuous monitoring of gas production and determination of final pH value, resp. Effects on intestinal flora activity and composition were determined via metabolite quantification and main bacterial genera enumeration. Cytotoxic, proliferative and differentiating effects were estimated after exposure of epithelial (Caco-2), monocytic (THP1) and lymphocytic T (Jurkat) cell lines. Despite very different biochem. structures, the two oligo-alginates exhibited similar fermentation patterns. As with native alginates, they required adaptation prior to their metabolism. However, this adaptation did not result in any change in the global bacterial composition. No noticeable biol. effect was detected for oligo-alginates. In contrast to native laminarans, oligo-laminarans did not require adaptation prior to their fermentation. Propionate production was stimulated but not significant modification of the balance between the main bacterial genera was observed during continuous culture of human fecal flora. Oligo-laminarans exhibited slightly inhibitory effects on Caco-2 cells, inhibited mononuclear cell proliferation and stimulated the expression of ICAM-1 monocytic cells. This last property appears promising, and may allow algal oligosides to be used as functional foods and/or components.

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 14 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:795760 CAPLUS  
DOCUMENT NUMBER: 128:87518  
TITLE: Pseudomonas aeruginosa antigens as potential vaccines  
AUTHOR(S): Stanislavsky, Eugene S.; Lam, Joseph S.  
CORPORATE SOURCE: Mechnikov Research Institute for Vaccines and Sera,  
Moscow, Russia  
SOURCE: FEMS Microbiology Reviews (1997), 21(3), 243-277  
CODEN: FMREE4; ISSN: 0168-6445  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal; General Review  
LANGUAGE: English

AB A review with 226 refs. Pseudomonas aeruginosa is one of the most important opportunistic bacterial pathogens in humans and animals. This organism is ubiquitous and has high intrinsic resistance to antibiotics due to the low permeability of the outer membrane and the presence of numerous multiple drug efflux pumps. Various cell-associated and secreted antigens of P. aeruginosa have been the subject of vaccine development. Among pseudomonas antigens, the mucoid substance, which is an extracellular slime consisting predominantly of alginate, was found to be heterogeneous in terms of size and immunogenicity. High mol. mass alginate components (30-300 kDa) appear to contain conserved epitopes while lower mol. mass alginate components (10-30 kDa) possess conserved epitopes in addition to unique epitopes. Surface-exposed antigens including O-antigens (O-specific polysaccharide of LPS) or H-antigens (flagellar antigens) have been used for serotyping due to their highly immunogenic nature. Chemical

structures of repeating units of O-specific polysaccharides have been elucidated and these data allowed the identification of 31 chemotypes of *P. aeruginosa*. Conserved epitopes among all serotypes of *P. aeruginosa* are located in the core oligosaccharide and the lipid A region of LPS and immunogens containing these epitopes induce cross-protective immunity in mice against different *P. aeruginosa* immunotypes. To examine the protective properties of OM proteins, a vaccine containing *P. aeruginosa* OM proteins of mol. masses ranging from 20 to 100 kDa has been used in pre-clin. and clin. trials. This vaccine was efficacious in animal models against *P. aeruginosa* challenge and induced high levels of specific antibodies in human volunteers. Plasma from human volunteers containing anti-*P. aeruginosa* antibodies provided passive protection and helped the recovery of 87 of patients with severe forms of *P. aeruginosa* infection. Vaccines prepared from *P. aeruginosa* ribosomes induced protective immunity in mice, but the efficacy of ribosomal vaccines in humans is not yet known. A number of recent studies indicated the potential of some *P. aeruginosa* antigens that deserve attention as new vaccine candidates. The outer core of LPS was implicated to be a ligand for binding of *P. aeruginosa* to airway and ocular epithelial cells of animals. However, heterogeneity exists in this outer core region among different serotypes. Epitopes in the inner core are highly conserved and it has been demonstrated to be surface-accessible, and not masked by O-specific polysaccharide. The use of an in vivo selection/expressed technol. (IVET) by a group of researchers identified a number of *P. aeruginosa* proteins that are expressed in vivo and essential for virulence. Two of these in vivo-expressed proteins are FptA (ferripyochelin receptor protein) and a homolog of an LPS biosynthetic enzyme. Our laboratory has identified a highly conserved protein, WbpM, and *P. aeruginosa* with a deficiency in this protein produces only rough LPS and became serum sensitive. Results from these studies have provided the foundation for a variety of vaccine formulations.

REFERENCE COUNT: 236 THERE ARE 236 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L5 ANSWER 15 OF 17 MEDLINE on STN  
 ACCESSION NUMBER: 2004336470 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 15237965  
 TITLE: Reduced immunogenicity of beta-lactoglobulin by conjugation with acidic oligosaccharides.  
 AUTHOR: Hattori Makoto; Miyakawa Shunpei; Ohama Yukie; Kawamura Hiroyuki; Yoshida Tadashi; To-o Kenji; Kuriki Takashi; Takahashi Koji  
 CORPORATE SOURCE: Department of Applied Biological Science, Faculty of Agriculture, Tokyo University of Agriculture and Technology, 3-5-8 Saiwai-cho, Fuchu City, Tokyo 183-8509, Japan.. makoto@cc.tuat.ac.jp  
 SOURCE: Journal of agricultural and food chemistry, (2004 Jul 14) Vol. 52, No. 14, pp. 4546-53. Journal code: 0374755. ISSN: 0021-8561.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE) (RESEARCH SUPPORT, NON-U.S. GOV'T)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200408  
 ENTRY DATE: Entered STN: 8 Jul 2004  
 Last Updated on STN: 13 Aug 2004  
 Entered Medline: 12 Aug 2004  
 AB Bovine beta-lactoglobulin (beta-LG) was conjugated with the acidic oligosaccharides, alginic acid oligosaccharide (ALGO) and phosphoryl oligosaccharides (POs) by the Maillard reaction to reduce the immunogenicity of beta-LG. The molar



ratios of beta-LG to ALGO and POs in the conjugates were 1:6 and 1:8. The carbohydrate-binding sites in the beta-LG-ALGO conjugate were partially identified to be (60)Lys, (77)Lys, (100)Lys, (138)Lys, and (141)Lys. The isoelectric point of each conjugate was lower than that of beta-LG. CD spectra indicated that the secondary structure of beta-LG was almost maintained after conjugation. The results of fluorescence studies indicated that the conformation around Trp had not changed in each conjugate and that the surface of each conjugate was covered with a saccharide chain. Structural analyses with monoclonal antibodies indicated that the conformation around (8)Lys-(19)Trp (beta-sheet, random coil, short helix) in the conjugates had changed, whereas the native structure was maintained around (15)Val-(29)Ile (beta-sheet) and (125)Thr-(135)Lys (alpha-helix). The beta-LG-ALGO and beta-LG-POs conjugates maintained 77 and 70% of the retinol binding activity of beta-LG. Conjugation with ALGO and POs substantially enhanced the thermal stability of beta-LG. The anti-beta-LG antibody response was markedly reduced after immunization with both conjugates in BALB/c, C57BL/6, and C3H/He mice. B cell epitopes of beta-LG and the conjugate recognized in these mice were determined with 15-mer multipin peptides, and the linear epitope profiles of the conjugates were found to be similar to those of beta-LG, whereas the antibody response to each epitope was dramatically reduced. In particular, effective reduction of the antibody response was observed in the vicinity of the carbohydrate-binding sites. Conjugation of beta-LG with these acidic oligosaccharides was effective in reducing the immunogenicity of beta-LG. The conjugates obtained in this study are edible, so they would be very useful for food application.

L5 ANSWER 16 OF 17 MEDLINE on STN  
 ACCESSION NUMBER: 2002712447 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 12474900  
 TITLE: Oligoalginate recognition and oxidative burst play a key role in natural and induced resistance of sporophytes of laminariales.  
 AUTHOR: Kupper Frithjof C; Muller Dieter G; Peters Akira F; Kloareg Bernard; Potin Philippe  
 CORPORATE SOURCE: Station Biologique, UMR 1931, CNRS-Laboratoires Goemar, Roscoff, Brittany, France.  
 SOURCE: Journal of chemical ecology, (2002 Oct) Vol. 28, No. 10, pp. 2057-81.  
 Journal code: 7505563. ISSN: 0098-0331.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 (RESEARCH SUPPORT, NON-U.S. GOV'T)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200303  
 ENTRY DATE: Entered STN: 17 Dec 2002  
 Last Updated on STN: 12 Mar 2003  
 Entered Medline: 11 Mar 2003

AB Forty-five species of brown algae (Phaeophyceae) were surveyed for their capacity to respond by an oxidative burst to challenges with alginate oligosaccharides. Intertidal frondose brown algae (Fucales) constitutively released high quantities of peroxide. The capacity to recognize oligoguluronates and to react with an oxidative burst was confined to alginate-rich taxa with complex thallus morphology, epitomized by the sporophytes of Laminariales. When kelp sporophytes were impaired in their capacity to perform an oxidative burst by the NAD(P)H oxidase inhibitor diphenylene iodonium, they were readily degraded by their bacterial epiflora. Thus, in these algae, the oxidative response is an essential element of natural resistance. We also report on the establishment of a well-defined experimental system for investigations on kelp immunity, with *Laminaria digitata* as the host and its phaeophycean endophyte, *Laminariocolax tomentosoides*, as the pathogen. We



found that an alginate-triggered oxidative burst significantly induces resistance in *Laminaria digitata* against infection. From these findings we infer that oligoalginate signals are important cues in the interaction between laminarialean kelps and potential pathogens.

L5 ANSWER 17 OF 17 MEDLINE on STN  
ACCESSION NUMBER: 1998113797 MEDLINE  
DOCUMENT NUMBER: PubMed ID: 9451816  
TITLE: *Pseudomonas aeruginosa* antigens as potential vaccines.  
AUTHOR: Stanislavsky E S; Lam J S  
CORPORATE SOURCE: Mechinkov Research Institute for Vaccines and Sera, Moscow, Russia.  
SOURCE: FEMS microbiology reviews, (1997 Nov) Vol. 21, No. 3, pp. 243-77. Ref: 234  
Journal code: 8902526. ISSN: 0168-6445.  
PUB. COUNTRY: Netherlands  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
(RESEARCH SUPPORT, NON-U.S. GOV'T)  
General Review; (REVIEW)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 199803  
ENTRY DATE: Entered STN: 26 Mar 1998  
Last Updated on STN: 26 Mar 1998  
Entered Medline: 16 Mar 1998

AB *Pseudomonas aeruginosa* is one of the most important opportunistic bacterial pathogens in humans and animals. This organism is ubiquitous and has high intrinsic resistance to antibiotics due to the low permeability of the outer membrane and the presence of numerous multiple drug efflux pumps. Various cell-associated and secreted antigens of *P. aeruginosa* have been the subject of vaccine development. Among *pseudomonas* antigens, the mucoid substance, which is an extracellular slime consisting predominantly of alginate, was found to be heterogenous in terms of size and immunogenicity. High molecular mass alginate components (30-300 kDa) appear to contain conserved epitopes while lower molecular mass alginate components (10-30 kDa) possess conserved epitopes in addition to unique epitopes. Surface-exposed antigens including O-antigens (O-specific polysaccharide of LPS) or H-antigens (flagellar antigens) have been used for serotyping due to their highly immunogenic nature. Chemical structures of repeating units of O-specific polysaccharides have been elucidated and these data allowed the identification of 31 chemotypes of *P. aeruginosa*. Conserved epitopes among all serotypes of *P. aeruginosa* are located in the core oligosaccharide and the lipid A region of LPS and immunogens containing these epitopes induce cross-protective immunity in mice against different *P. aeruginosa* immunotypes. To examine the protective properties of OM proteins, a vaccine containing *P. aeruginosa* OM proteins of molecular masses ranging from 20 to 100 kDa has been used in pre-clinical and clinical trials. This vaccine was efficacious in animal models against *P. aeruginosa* challenge and induced high levels of specific antibodies in human volunteers. Plasma from human volunteers containing anti-*P. aeruginosa* antibodies provided passive protection and helped the recovery of 87% of patients with severe forms of *P. aeruginosa* infection. Vaccines prepared from *P. aeruginosa* ribosomes induced protective immunity in mice, but the efficacy of ribosomal vaccines in humans is not yet known. A number of recent studies indicated the potential of some *P. aeruginosa* antigens that deserve attention as new vaccine candidates. The outer core of LPS was implicated to be a ligand for binding of *P. aeruginosa* to airway and ocular epithelial cells of animals. However, heterogeneity exists in this outer core region among different serotypes. Epitopes in the inner core are highly conserved and it has been demonstrated to be surface-accessible, and not masked by O-specific polysaccharide. The use of an in vivo selection/expression technology

(IVET) by a group of researchers identified a number of *P. aeruginosa* proteins that are expressed in vivo and essential for virulence. Two of these in vivo-expressed proteins are FptA (ferripyochelin receptor protein) and a homologue of an LPS biosynthetic enzyme. Our laboratory has identified a highly conserved protein, WbpM, and *P. aeruginosa* with a deficiency in this protein produces only rough LPS and became serum sensitive. Results from these studies have provided the foundation for a variety of vaccine formulations.

L5 ANSWER 1 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:1355038 CAPLUS  
DOCUMENT NUMBER: 146:61455  
TITLE: Method for production of complex biologically active food supplement based on sea hydrobionts (variants)  
INVENTOR(S): Muzaleva, O. Yu.; Kovalev, N. N.; Pivnenko, T. N.  
PATENT ASSIGNEE(S): OOO "Biopolimery", Russia  
SOURCE: Russ., 13pp.  
CODEN: RUXXE7  
DOCUMENT TYPE: Patent  
LANGUAGE: Russian  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RU 2289956	C1	20061227	RU 2005-109701	20050404
PRIORITY APPLN. INFO.:			RU 2005-109701	20050404

AB The claimed method involves immobilization of biol. active substance(s) on polysaccharides (dry mass weight ratio 1:3), adding ascorbic acid at 2.5-3.0 weight%, conditioning under continuous agitation for 1-1.5 h, and drying. The biol. active substance can be enzymic hydrolyzates of animal protein/peptide complex, nucleoprotein complex, or protein/oligosaccharide complex. The polysaccharide can be demineralized chitan suspension or alginate gel. The method offers increased yield of the target product, decreased production cost, and food supplements with immunomodulating, antioxidant and antitoxic properties.

L5 ANSWER 2 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:2413 CAPLUS  
DOCUMENT NUMBER: 144:232093  
TITLE: Manufacture of health beverage containing Fagopyrum polypeptides  
INVENTOR(S): Zhou, Xiaoli; Li, Hongmin; Zhou, Yiming  
PATENT ASSIGNEE(S): Shanghai Institute of Technology, Peop. Rep. China  
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 8 pp.  
CODEN: CNXXEV  
DOCUMENT TYPE: Patent  
LANGUAGE: Chinese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1663455	A	20050907	CN 2005-10024516	20050322
PRIORITY APPLN. INFO.:			CN 2005-10024516	20050322

AB The title health beverage is manufactured by the following steps: (1) washing and soaking Fagopyrum seeds, (2) sprouting, (3) breaking the cell wall of Fagopyrum germ and pulverizing, (4) carrying out enzymic hydrolysis by neutral proteases, (5) adding honey (1-5 weight%), oligosaccharides syrup (1-3 weight%), xanthan (0.005-0.02 weight%), sodium CM-cellulose (0.01-0.1 weight%), sodium alginate (0.01-0.2 weight%), and carotene, and (6) homogenizing, sterilizing, and packing to obtain the final product. The beverage has health promoting and immunity enhancing effects.

L5 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1073217 CAPLUS  
DOCUMENT NUMBER: 144:27484  
TITLE: Application of algin oligosaccharide as prebiotics  
INVENTOR(S): Yu, Wengong; Wang, Ye; Li, Jingbao; Han, Feng; Lu, Xinzhi; Gong, Qianhong  
PATENT ASSIGNEE(S): Ocean University of China, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 7 pp.  
 CODEN: CNXXEV  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Chinese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1562071	A	20050112	CN 2004-10023926	20040416
PRIORITY APPLN. INFO.:			CN 2004-10023926	20040416

AB The title algin oligosaccharide is an indigestible oligosaccharide, and can remarkably promote the growth of probiotic bacteria such as *Bacillus bifidus* and *Lactobacillus* and inhibit the growth of harmful bacteria such as pathogenic bacteria and putrefying bacteria to improve the microecol. environment of intestinal tract, improve immunity, enhance the function of endocrine system, and promote the adsorption of nutrients. The algin oligosaccharide can be used for relieving the sub-health state, preventing and treating diseases such as tumors and intestinal infections, prolonging life, and caring skin, and can be used as a new medicine, health product, food additive or feed additive.

L5 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:778417 CAPLUS

DOCUMENT NUMBER: 143:227864

TITLE: Structure-activity relationship of alginate oligosaccharides in the induction of cytokine production from RAW264.7 cells

AUTHOR(S): Iwamoto, Mami; Kurachi, Maki; Nakashima, Takuji; Kim, Daekyung; Yamaguchi, Kenichi; Oda, Tatsuya; Iwamoto, Yoshiko; Muramatsu, Tsuyoshi

CORPORATE SOURCE: Division of Biochemistry, Faculty of Fisheries, Nagasaki University, Nagasaki, 852 8521, Japan

SOURCE: FEBS Letters (2005), 579(20), 4423-4429

CODEN: FEBLAL; ISSN: 0014-5793

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Guluronate and mannuronate oligomers with various d.p. were prepared from polyguluronate (PG) and polymannuronate (PM) with an alginate lyase from a *Pseudoalteromonas* sp., and their activities to induce cytokine secretion from mouse macrophage cell line RAW264.7 cells were examined. Enzymically depolymerized unsaturated alginate oligomers induced tumor necrosis factor (TNF)- $\alpha$  secretion from RAW264.7 cells in a structure-depending manner, while the activities of saturated alginate oligomers prepared by acid hydrolysis were fairly low or only trace levels. These results suggest that unsaturated end-structure of alginate oligomers was important for the TNF- $\alpha$ -inducing activity. Among the unsaturated guluronate (G3-G9) and mannuronate (M3-M9) oligomers, G8 and M7 showed the most potent activity, respectively. Bio-Plex assay revealed that interleukin (IL)-1 $\alpha$ , IL-1 $\beta$ , and IL-6 secretion from RAW264.7 cells were also induced by unsaturated alginate oligomers with similar structure-activity relation profiles as seen in TNF- $\alpha$ , and the most potent activities were observed with G8 and M7. These results suggest that G8 and M7 may have the most suitable molecular size or entire structural conformation as stimulant for cytokine secretion. Since antibodies to Toll-like receptor (TLR)2 and TLR4 effectively inhibited the G8- and M7-induced production of TNF- $\alpha$ , these alginate oligomers may stimulate innate immunity through the pattern recognition receptors on macrophages similar to microbial products.

REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:497005 CAPLUS  
DOCUMENT NUMBER: 142:339  
TITLE: Antitumour activities of alginate-derived oligosaccharides and their sulphated substitution derivatives  
AUTHOR(S): Hu, Xiaoke; Jiang, Xiaolu; Hwang, Hueymin; Liu, Shiliang; Guan, Huashi  
CORPORATE SOURCE: Institute of Marine Food and Drug, Ocean University of China, Qingdao, 266003, Peop. Rep. China  
SOURCE: European Journal of Phycology (2004), 39(1), 67-71  
CODEN: EJPHE5; ISSN: 0967-0262  
PUBLISHER: Taylor & Francis Ltd.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Alginate lyase, isolated from a marine culture of *Vibrio* sp. 510, was used to depolymerize alginate. Two alginate-derived oligosaccharides (ADOs) of different mol. weight were sulfated with the formamide-chlorosulfonic acid method. The antitumor activities of the two ADOs and their sulfated substitution derivs. that exhibited no direct cytotoxic effects on tsFT210 cells, were subsequently determined on Kunming mice. The best antitumor performer was Oligosaccharide A (mol. weight 3798 Da, sulfation degree 1.3), which exhibited 70.4 and 66.0% tumor inhibition against solid Sarcoma 180 at doses of 100 and 50 mg kg<sup>-1</sup>, resp. For ADOs and their sulfated derivs., an indirect antitumor effect via modulation of the host-mediated immune defenses is postulated.  
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:462436 CAPLUS  
DOCUMENT NUMBER: 141:156243  
TITLE: Reduced Immunogenicity of  $\beta$ -Lactoglobulin by Conjugation with Acidic Oligosaccharides  
AUTHOR(S): Hattori, Makoto; Miyakawa, Shunpei; Ohama, Yukie; Kawamura, Hiroyuki; Yoshida, Tadashi; To-o, Kenji; Kuriki, Takashi; Takahashi, Koji  
CORPORATE SOURCE: Department of Applied Biological Science, Faculty of Agriculture, Tokyo University of Agriculture and Technology, Tokyo, 183-8509, Japan  
SOURCE: Journal of Agricultural and Food Chemistry (2004), 52(14), 4546-4553  
CODEN: JAFCAU; ISSN: 0021-8561  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Bovine  $\beta$ -lactoglobulin ( $\beta$ -LG) was conjugated with the acidic oligosaccharides, alginic acid oligosaccharide (ALGO) and phosphoryl oligosaccharides (POs) by the Maillard reaction to reduce the immunogenicity of  $\beta$ -LG. The molar ratios of  $\beta$ -LG to ALGO and POs in the conjugates were 1:6 and 1:8. The carbohydrate-binding sites in the  $\beta$ -LG-ALGO conjugate were partially identified to be 60Lys, 77Lys, 100Lys, 138Lys, and 141Lys. The isoelec. point of each conjugate was lower than that of  $\beta$ -LG. CD spectra indicated that the secondary structure of  $\beta$ -LG was almost maintained after conjugation. The results of fluorescence studies indicated that the conformation around Trp had not changed in each conjugate and that the surface of each conjugate was covered with a saccharide chain. Structural analyses with monoclonal antibodies indicated that the conformation around 8Lys-19Trp ( $\beta$ -sheet, random coil, short helix) in the conjugates had changed, whereas the native structure was maintained around 15Val-29Ile ( $\beta$ -sheet) and 125Thr-135Lys ( $\alpha$ -helix). The  $\beta$ -LG-ALGO and  $\beta$ -LG-POs conjugates maintained 77 and 70% of the retinol binding activity of



$\beta$ -LG. Conjugation with ALGO and POs substantially enhanced the thermal stability of  $\beta$ -LG. The anti- $\beta$ -LG antibody response was markedly reduced after immunization with both conjugates in BALB/c, C57BL/6, and C3H/He mice. B cell epitopes of  $\beta$ -LG and the conjugate recognized in these mice were determined with 15-mer multipin peptides, and the linear epitope profiles of the conjugates were found to be similar to those of  $\beta$ -LG, whereas the antibody response to each epitope was dramatically reduced. In particular, effective reduction of the antibody response was observed in the vicinity of the carbohydrate-binding sites. Conjugation of  $\beta$ -LG with these acidic oligosaccharides was effective in reducing the immunogenicity of  $\beta$ -LG. The conjugates obtained in this study are edible, so they would be useful in food applications.

REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 14 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1996:418000 CAPLUS  
 DOCUMENT NUMBER: 125:67791  
 TITLE: Compositions and methods for human gastrointestinal health  
 INVENTOR(S): Paul, Stephen M.  
 PATENT ASSIGNEE(S): Metagenics, Inc., USA  
 SOURCE: PCT Int. Appl., 54 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9613271	A1	19960509	WO 1995-US13905	19951027
W: AL, AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 5531988	A	19960702	US 1994-331140	19941028
US 5531989	A	19960702	US 1995-437316	19950509
AU 9540136	A	19960523	AU 1995-40136	19951027
AU 709155	B2	19990819		
EP 787006	A1	19970806	EP 1995-938934	19951027
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
AU 774675	B2	20040701	AU 2001-87235	20011101
PRIORITY APPLN. INFO.:				
			US 1994-331140	A 19941028
			US 1995-437316	A 19950509
			WO 1995-US13905	W 19951027
			AU 1999-59577	A3 19991119

AB A composition for promoting gastrointestinal health comprises an effective amount of a beneficial human intestinal microorganism and an effective amount of an Ig composition comprising concentrated immunol. active Igs. Another composition for restoring and maintaining gastrointestinal health comprises 40-60% by weight of an Ig composition comprising concentrated immunol. active Igs and 40-60% by weight of soluble dietary fiber selected from inulin, fructooligosaccharides, pectin, guar gum, and mixts. thereof. The Ig and fiber-containing composition can optionally contain one or more of a beneficial human intestinal microorganism, components of a non-immune natural defense system, an iron-sequestering mol., and gluconic acid. Preferred beneficial human intestinal microorganisms include lactobacilli and bifidobacteria. The immunol. active Igs are preferably purified from bovine milk, milk products, or whey. Methods of use are also described.

L6 ANSWER 15 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1995:233870 CAPLUS  
 DOCUMENT NUMBER: 122:7547  
 TITLE: Polyclonal antibody against a complement-activating pectin from the roots of Angelica acutiloba  
 AUTHOR(S): Wang, Nai-Li; Kiyohara, Hiroaki; Matsumoto, Tsukasa; Otsuka, Hanako; Hirano, Masumi; Yamada, Haruki  
 CORPORATE SOURCE: Sheyang College Pharmacy, Liaonig Province, Peop. Rep. China  
 SOURCE: Planta Medica (1994), 60(5), 425-9  
 CODEN: PLMEAA; ISSN: 0032-0943

PUBLISHER: Thieme  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Anti-sera against a complement-activating pectin (AR-2IIb), which was purified from the roots of *Angelica acutiloba* Kitagawa, were obtained by immunization of rabbits, and a polyclonal anti-AR-2IIb antibody of the IgG class was purified by affinity chromatog. on AR-2IIb-immobilized Sepharose and Protein G-Sepharose. Periodate oxidation of AR-2IIb significantly reduced its inhibitory activity on the reactivity of AR-2IIb to anti-AR-2IIb-IgG, but pronase digestion of AR-2IIb did not affect its inhibitory activity. Other pharmacol. active pectins from *A. acutiloba*, *Bupleurum falcatum*, and *Glycyrrhiza uralensis* and the complement-activating pectic arabinogalactan from *A. acutiloba* also showed significant inhibitory activities on the reactivity of AR-2IIb to anti-AR-2IIb-IgG, but these inhibitory activities were lower than that of AR-2IIb. Other pectins, polygalacturonic acid, arabinogalactan, galactan, and araban tested had negligible inhibitory activity. Endo- $\alpha$ -(1 $\rightarrow$ 4)-polygalacturonase digestion of AR-2IIb indicated that its "ramified" region (rhamnogalacturonan core possessing neutral oligosaccharide side-chains) contained epitopes for anti-AR-2IIb-IgG, but that 2-keto-3-deoxyoctulosonic acid (KDO)-containing regions and oligogalacturonides obtained from AR-2IIb were not recognized by anti-AR-2IIb-IgG. Although carboxyl-reduction of galacturonic acid in the "ramified" region decreased the inhibitory activity of the "ramified" region on its reactivity to anti-AR-2IIb, an acidic tetrasaccharide unit in the rhamnogalacturonan core had negligible inhibitory activity. The polyclonal antibody is useful for determination of the complement activating pectin of *Angelica acutiloba* and for quality control and pharmacokinetics of Kampo medicine therapy.

L6 ANSWER 16 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:404450 CAPLUS  
DOCUMENT NUMBER: 121:4450  
TITLE: Immobilization of pectin, xyloglucan and other soluble plant polysaccharides on blotting membranes  
AUTHOR(S): Jeffree, Christopher E.  
CORPORATE SOURCE: Sci. Fac., Univ. Edinburgh, Edinburgh, EH9 3JH, UK  
SOURCE: New Phytologist (1993), 125(4), 695-706  
CODEN: NEPHAV; ISSN: 0028-646X  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Soluble polysaccharides, of natural and synthetic origins, are immobilized by nylon, nitrocellulose, and polyvinylidene difluoride blotting membranes. Retention of an acid and a neutral polysaccharide, measured using radioactive pectin and xyloglucan-rich hemicellulose, exceeded 90% on some blotting membranes eluted in aqueous media. The 2 polysaccharides displayed different binding characteristics. Several polyanionic uronic acid polysaccharides bound strongly to nylon 66 (Hybond N, Amersham) and to pos. charge-modified or cationic nylon blotting membranes (Hybond N+, Amersham), but much less strongly to paper, nitrocellulose, or polyvinylidene difluoride. Fragments of pectin, including Rhamnogalacturonan I and Rhamnogalacturonan II, and galacturonic acid oligosaccharides as small as the dimer also bind to nylon membranes, and can be detected using cationic dyes or by means of their radioactivity. Xyloglucan-rich hemicellulose in general binds more strongly than pectin to the same substrates. Of the substrates tested, charge-modified nylon gave the best retention of pectin, and paper gave the best retention of xyloglucan during washes in water and solns. of salts, acids, and bases. The influence of pH and solns. of mono, di-, and trivalent salts on the retention of some pectic polysaccharides by nylon was investigated. A large proportion, in excess of 70% of pectin applied to charge-modified nylon, remained tightly bound at all salt concns. up to 2M. Soluble acid polysaccharides

immobilized on blotting membranes could be detected by staining with cationic dyes, such as ruthenium red, alcian blue 8GX, and coriphosphine O, providing facile detection and a simple means of characterizing the cytochem. specificity of their staining reactions. Immobilized neutral polysaccharides, which do not react with cationic dyes, could usually be detected by the periodate-Schiff reaction, or, if labeled with radionuclides, by autoradiog. or scintillation counting. Soluble polysaccharides, like proteins and nucleic acids, may therefore be immobilized on blotting membranes for investigation with cytochem., immunocytochem., and other mol. probing and detection procedures. Quant. binding data showed marked differences in the affinity of different polysaccharides for blotting substrates. Detailed characterization of the binding behavior is therefore a prerequisite for optimization and rational application of polysaccharide blotting.

L6 ANSWER 17 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:214831 CAPLUS

DOCUMENT NUMBER: 120:214831

TITLE: Generation of monoclonal antibodies against plant cell-wall polysaccharides. I. Characterization of a monoclonal antibody to a terminal  $\alpha$ -(1 $\rightarrow$ 2)-linked fucosyl-containing epitope

AUTHOR(S): Puhlmann, Jorg; Bucheli, Eva; Swain, Michael J.; Dunning, Nancy; Albersheim, Peter; Darvill, Alan G.; Hahn, Michael G.

CORPORATE SOURCE: Complex Carbohydr. Res. Cent., Univ. Georgia, Athens, GA, 30602-4712, USA

SOURCE: Plant Physiology (1994), 104(2), 699-710

CODEN: PLPHAY; ISSN: 0032-0889

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Monoclonal antibodies (McAbs) generated against rhamnogalacturonan I (RG-I) purified from suspension-cultured sycamore maple (Acer pseudoplatanus) cells fall into three recognition groups. Four McAbs (group I) recognize an epitope that appears to be immunodominant and is present on RG-I from maize and sycamore maple, pectin and polygalacturonic acid from citrus, gum tragacanth, and membrane glycoproteins from suspension-cultured cells of maize, tobacco, parsley, bean, and sycamore maple. A second set of McAbs (group II) recognizes an epitope present in sycamore maple RG-I but does not bind to any of the other polysaccharides or glycoproteins recognized by group I. Lastly, one McAb, CCRC-M1 (group III), binds to RG-I and more strongly to xyloglucan (XG) from sycamore maple but not to maize RG-I, citrus polygalacturonic acid, or to the plant membrane glycoproteins recognized by group I. The epitope to which CCRC-M1 binds has been examined in detail. Ligand competition assays using a series of oligosaccharides derived from or related to sycamore maple XG demonstrated that a terminal  $\alpha$ -(1 $\rightarrow$ 2)-linked fucosyl residue constitutes an essential part of the epitope recognized by CCRC-M1. Oligosaccharides containing this structural motif compete with intact sycamore maple XG for binding to the antibody, whereas structurally related oligosaccharides, which do not contain terminal fucosyl residues or in which the terminal fucosyl residue is linked  $\alpha$ -(1 $\rightarrow$ 3) to the adjacent glycosyl residue, do not compete for the antibody binding site. The ligand binding assays also indicate that CCRC-M1 binds to a conformationally dependent structure of the polysaccharide. Other results of this study establish that some of the carbohydrate epitopes of the plant extracellular matrix are shared among different macromols.

L6 ANSWER 18 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1991:200996 CAPLUS

DOCUMENT NUMBER: 114:200996

TITLE: Analysis of tomato polygalacturonase expression in transgenic tobacco



AUTHOR(S) : Osteryoung, Katherine W.; Toenjes, Kurt; Hall, Bradford; Winkler, Vickie; Bennett, Alan B.  
CORPORATE SOURCE: Dep. Veg. Crops, Univ. California, Davis, CA, 95616, USA  
SOURCE: Plant Cell (1990), 2(12), 1239-48  
CODEN: PLCEEW; ISSN: 1040-4651  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Tomato polygalacturonase is a cell wall enzyme secreted in large amts. during tomato fruit ripening. Polygalacturonase is synthesized as a glycoprotein precursor that undergoes numerous cotranslational and post-translational processing steps during its maturation, yielding three isoenzymes in tomato fruit, PG1, PG2A, and PG2B. To investigate the physiol. roles of the three isoenzymes and the functional significance of the polygalacturonase processing domains in its intracellular transport and activity, polygalacturonase expression in transgenic tobacco plants was examined. A full-length polygalacturonase cDNA was placed under control of the cauliflower mosaic virus 35S promoter and introduced into tobacco by way of Agrobacterium-mediated transformation. Anal. of transgenic tobacco plants indicated that (1) immunol. detectable polygalacturonase can be extracted from leaves, roots, and stems of transgenic tobacco plants; (2) only PG2A and PG2B were detectable in transgenic tobacco; (3) the polygalacturonase isoenzymes present in transgenic tobacco were electrophoretically indistinguishable from the tomato isoenzymes; (4) the N-terminal sequence, degree of N-linked glycosylation, and extent of oligosaccharide processing were similar in polygalacturonase from transgenic tobacco and tomato; (5) polygalacturonase was properly localized in cell walls of transgenic tissue; (6) the protein was enzymically active in vitro; however, (7) accumulation of PG2A and PG2B in cell walls of transgenic tobacco did not result in pectin degradation in vivo. These results indicated that tomato polygalacturonase was properly processed and transported to the cell wall of tobacco. However, accumulation of the two polygalacturonase isoenzymes expressed in this heterologous host was insufficient to promote polyuronide degradation in tobacco leaf tissue.

L6 ANSWER 19 OF 27 MEDLINE on STN  
ACCESSION NUMBER: 2006276144 MEDLINE  
DOCUMENT NUMBER: PubMed ID: 16533594  
TITLE: Human milk oligosaccharides affect P-selectin binding capacities: in vitro investigation.  
AUTHOR: Schumacher Gabriele; Bendas Gerd; Stahl Bernd; Beermann Christopher  
CORPORATE SOURCE: Pharmacy, Pharmaceutical Chemistry, Rheinische Friedrich Wilhelms University Bonn, Bonn, Germany.  
SOURCE: Nutrition (Burbank, Los Angeles County, Calif.), (2006 Jun) Vol. 22, No. 6, pp. 620-7. Electronic Publication: 2006-03-13.  
Journal code: 8802712. ISSN: 0899-9007.  
PUB. COUNTRY: United States  
DOCUMENT TYPE: (IN VITRO)  
Journal; Article; (JOURNAL ARTICLE)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 200610  
ENTRY DATE: Entered STN: 18 May 2006  
Last Updated on STN: 27 Oct 2006  
Entered Medline: 26 Oct 2006

AB OBJECTIVE: In the initial phase of cellular immune response, selectins mediate the emigration of leukocytes from the blood stream into inflammatory regions. Human milk oligosaccharides (HMOs) possess binding epitopes of selectin ligands such as sialyl Lewis(x) and sialyl Lewis(a) and therefore might impair the interaction of selectins with cellular ligands. Neutral, acidic, sialylated, or fucosylated HMO



fractions with polymerization degrees of 3 to 50 were investigated regarding this interaction in a dynamic flow chamber model that considers physiologic shear stress conditions. METHODS: Human milk oligosaccharides were compared with kappa-carrageenans and pectin oligosaccharides to deduce structure-activity relations. Fucoidan and sialyl Lewis(x) served as positive controls. RESULTS: All HMO fractions affected P-selectin ligand binding capacity but were not comparable to fucoidan. The activity of the acidic HMO fraction resembled sialyl Lewis(x) in decreasing the binding of the ligand to P-selectin. CONCLUSION: Human milk oligosaccharides modulate rather than block the function of P-selectin.

L6 ANSWER 20 OF 27 MEDLINE on STN  
 ACCESSION NUMBER: 2005626051 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 16263905  
 TITLE: Biochemical and immunohistochemical analysis of pectic polysaccharides in the cell walls of Arabidopsis mutant QUASIMODO 1 suspension-cultured cells: implications for cell adhesion.  
 AUTHOR: Leboeuf Edouard; Guillon Fabienne; Thoiron Severine; Lahaye Marc  
 CORPORATE SOURCE: INRA-Biopolymeres, Interactions, Assemblages, BP 71627, F-44316 Nantes Cedex 3, France.  
 SOURCE: Journal of experimental botany, (2005 Dec) Vol. 56, No. 422, pp. 3171-82. Electronic Publication: 2005-11-01. Journal code: 9882906. ISSN: 0022-0957.  
 PUB. COUNTRY: England: United Kingdom  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200601  
 ENTRY DATE: Entered STN: 29 Nov 2005  
 Last Updated on STN: 21 Jan 2006  
 Entered Medline: 20 Jan 2006

AB Mutation in the Arabidopsis thaliana QUASIMODO 1 gene (QUA1), which encodes a putative glycosyltransferase, reduces cell wall pectin content and cell adhesion. Suspension-cultured calli were generated from roots of wild-type (wt) and qual-1 A. thaliana plants. The altered cell adhesion phenotype of the qual-1 plant was also found with its suspension-cultured calli. Cell walls of both wt and qual-1 calli were analysed by chemical, enzymatic and immunohistochemical techniques in order to assess the role of pectic polysaccharides in the mutant phenotype. Compared with the wt, qual-1 calli cell walls contained more arabinose (23.6 versus 21.6 mol%), rhamnose (3.1 versus 2.7 mol%), and fucose (1.4 versus 1.2 mol%) and less uronic acid (24.2 versus 27.6 mol%), and they were less methyl-esterified (DM: 22.9% versus 30.3%). When sequential pectin extraction of calli cell walls was performed, qual-1 water-soluble and chelator-soluble extracts contained more arabinose and less uronic acid than weight. Water-soluble pectins were less methyl-esterified in qual-1 than in weight. Chelator-soluble pectins were more acetyl-esterified in qual-1. Differences in the cell wall chemistry of wt and mutant calli were supported by a reduction in JIM7 labelling (methyl-esterified homogalacturonan) of the whole wall in small cells and particularly by a reduced labelling with 2F4 (calcium-associated homogalacturonan) in the middle lamella at tricellular junctions of large qual-1 cells. Differences in the oligosaccharide profile obtained after endopolygalacturonase degradation of alkali extracts from qual-1 and wt calli indicated variations in the structure of covalently bonded homogalacturonan. About 29% more extracellular polymers rich in pectins were recovered from the calli culture medium of qual-1 compared with weight. These results show that perturbation of QUASIMODO 1-1 gene expression in calli resulted in alterations of homogalacturonan content and cell wall location. The consequences of these structural

variations are discussed with regard to plant cell adhesion.

L6 ANSWER 21 OF 27 MEDLINE on STN  
ACCESSION NUMBER: 2005541563 MEDLINE  
DOCUMENT NUMBER: PubMed ID: 15887026  
TITLE: Distribution of pectic epitopes in cell walls of the sugar  
beet root.  
AUTHOR: Guillemin Florence; Guillon Fabienne; Bonnin Estelle;  
Devaux Marie-Francoise; Chevalier Therese; Knox J Paul;  
Liners Francoise; Thibault Jean-Francois  
CORPORATE SOURCE: Institut National de la Recherche Agronomique, Unite de  
Recherche sur les Polysaccharides, leurs Organisations et  
Interactions, rue de la Geraudiere, BP 71627, 44316, Nantes  
cedex 03, France.  
SOURCE: Planta, (2005 Oct) Vol. 222, No. 2, pp. 355-71. Electronic  
Publication: 2005-05-11.  
Journal code: 1250576. ISSN: 0032-0935.  
PUB. COUNTRY: Germany: Germany, Federal Republic of  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
(RESEARCH SUPPORT, NON-U.S. GOV'T)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 200601  
ENTRY DATE: Entered STN: 12 Oct 2005  
Last Updated on STN: 13 Jan 2006  
Entered Medline: 12 Jan 2006

AB Immunolabelling techniques with antibodies specific to partially  
methyl-esterified homogalacturonan (JIM5: unesterified residues flanked by  
methylesterified residues. JIM7: methyl-esterified residues flanked by  
unesterified residues), a blockwise de-esterified homogalacturonan (2F4),  
1,4-galactan (LM5) and 1,5-arabinan (LM6) were used to map the  
distribution of pectin motifs in cell walls of sugar beet root  
(Beta vulgaris). PME and alkali treatments of sections were used in  
conjunction with JIM5-7 and 2F4. The JIM7 epitope was abundant and  
equally distributed in all cells. In storage parenchyma, the JIM5 epitope  
was restricted to some cell junctions and the lining of intercellular  
spaces while in vascular tissues it occurred at cell junctions in some  
phloem walls and in xylem derivatives. After secondary wall formation,  
the JIM5 epitope was restricted to inner cell wall regions between  
secondary thickenings. The 2F4 epitope was not detected without  
de-esterification treatment. PME treatments prior to the use of 2F4  
indicated that HG at cell corners was not acetylated. The LM5 epitope was  
mainly present in the cambial zone and when present in storage parenchyma,  
it was restricted to the wall region closest to the plasma membrane. The  
LM6 epitope was widely distributed throughout primary walls but was more  
abundant in bundles than in medullar ray tissue and storage parenchyma.  
These data show that the occurrence of oligosaccharide motifs of  
pectic polysaccharides are spatially regulated in sugar beet root cell  
walls and that the spatial patterns vary between cell types suggesting  
that structural variants of pectic polymers are involved in the modulation  
of cell wall properties.

L6 ANSWER 22 OF 27 MEDLINE on STN  
ACCESSION NUMBER: 2001155487 MEDLINE  
DOCUMENT NUMBER: PubMed ID: 11168799  
TITLE: Preservation of the delayed-type hypersensitivity response  
to alloantigen by xyloglucans or oligogalacturonide does  
not correlate with the capacity to reject  
ultraviolet-induced skin tumors in mice.  
AUTHOR: Strickland F M; Sun Y; Darvill A; Eberhard S; Pauly M;  
Albersheim P  
CORPORATE SOURCE: Department of Immunology-178, The University of Texas MD  
Anderson Cancer Center, Houston, Texas 77030, USA..  
fstrickl@notes.mdacc.tmc.edu

CONTRACT NUMBER: CA-16672 (NCI)  
 R29-CA70383 (NCI)  
 SOURCE: The Journal of investigative dermatology, (2001 Jan) Vol. 116, No. 1, pp. 62-8.  
 Journal code: 0426720. ISSN: 0022-202X.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 (RESEARCH SUPPORT, U.S. GOV'T, NON-P.H.S.)  
 (RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200103  
 ENTRY DATE: Entered STN: 4 Apr 2001  
 Last Updated on STN: 4 Apr 2001  
 Entered Medline: 22 Mar 2001

AB Chronic exposure to ultraviolet radiation suppresses T cell-mediated immune responses and induces the formation of suppressor T lymphocytes that prevent the rejection of highly antigenic ultraviolet-induced skin cancers in mice. Tamarind seed xyloglucans and pectinic oligogalacturonides prevent suppression of delayed-type hypersensitivity immune responses in mice to *Candida albicans* and alloantigen caused by a single exposure of ultraviolet radiation. We therefore investigated the ability of these poly/oligosaccharides to prevent suppression of T cell-mediated immune responses and suppressor cell induction during chronic ultraviolet irradiation and to preserve the capacity of ultraviolet-irradiated mice to reject a transplanted, highly antigenic, ultraviolet-induced tumor. C3H/HeN mice were treated 3x per week for 12 wk with 15 kJ per m<sup>2</sup> ultraviolet B radiation followed by application of the polysaccharides/oligosaccharides. The delayed-type hypersensitivity responses to *C. albicans* and alloantigen were measured after 1, 6, and 12 wk of treatment. Following the 12th wk of treatment the remaining mice were injected with the highly antigenic ultraviolet-induced, syngeneic tumor cell line UV5497-5. The polysaccharides/oligosaccharides protected delayed-type hypersensitivity responses to *C. albicans* but not contact hypersensitivity responses to dinitrofluorobenzene for up to 6 wk of ultraviolet radiation after which protection declined and suppressor cells were observed. In contrast, the delayed-type hypersensitivity response to alloantigen was preserved for the entire 12 wk of ultraviolet irradiation. Despite protection of immunity to alloantigen, the transplanted tumor cells grew equally well in all ultraviolet-irradiated animals. These results indicate that delayed-type hypersensitivity responses are heterogeneous and that delayed-type hypersensitivity to alloantigen is not a surrogate marker for rejection of ultraviolet-induced skin tumors.

L6 ANSWER 23 OF 27 MEDLINE on STN  
 ACCESSION NUMBER: 2000266516 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 10806553  
 TITLE: [The isolation, preliminary study of structure and physiological activity of water-soluble polysaccharides from squeezed berries of Snowball tree *Viburnum opulus*].  
 Vydelenie i predvaritel'noe issledovanie stroeniia i fiziologicheskoi aktivnosti vodorastvorimyykh polisakharidov iz shrota iagod Kaliny obyknovЕННОi *Viburnum opulus*.  
 AUTHOR: Ovodova R G; Golovchenko V V; Popov S V; Shashkov A S; Ovodov Iu S  
 CORPORATE SOURCE: Institute of Physiology, Komi Research Center, Urals Branch, Russian Academy of Sciences, Syktyvkar, Russia..  
 ovoys@iph.komi.ru  
 SOURCE: Bioorganicheskaya khimiya, (2000 Jan) Vol. 26, No. 1, pp. 61-7.  
 Journal code: 7804941. ISSN: 0132-3423.  
 PUB. COUNTRY: RUSSIA: Russian Federation

DOCUMENT TYPE: (ENGLISH ABSTRACT)  
Journal; Article; (JOURNAL ARTICLE)  
LANGUAGE: Russian  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 200007  
ENTRY DATE: Entered STN: 10 Aug 2000  
Last Updated on STN: 10 Aug 2000  
Entered Medline: 24 Jul 2000

AB Water-soluble polysaccharide fractions VO1-VO4 were isolated from the squeezed berries of snowball tree (*Viburnum opulus*) by successive extraction with water at various temperatures and pH and with aqueous solutions of ammonium oxalate. These fractions were purified by ion-exchange chromatography on DEAE cellulose, and the homogeneity of the purified polysaccharides was determined by gel filtration on Sephacryl S-500. Acidic polysaccharides close to pectins in their sugar composition were found in all the extracts (fractions VO1-1, VO2-1, VO3-2, and VO4-2). Residues of galacturonic acid, galactose, arabinose, and (to a lesser extent) rhamnose are their main constituents. Neutral polysaccharides composed mainly of galactose and mannose residues were additionally found in fractions extracted with acidified water (pH 4.0) and with aqueous ammonium oxalate solutions. Partial acidic hydrolysis and digestion with pectinase of acidic polysaccharides indicated that their carbohydrate backbone consists of alpha-1,4-linked residues of D-galacturonic acid. NMR spectra of acidic polysaccharides (fractions VO3-2 and VO3-3) confirmed this and demonstrated that their side oligosaccharide chains are composed of beta-1,4-linked galactopyranose residues and of terminal and 2,5- and 3,5-substituted residues of alpha-arabinofuranose at a Gal: Ara ratio of 3:1. Some polysaccharides from *V. opulus* were found to possess an immunostimulating activity: they enhance phagocytosis, in particular, the phagocytic index and the secretion of lysosomal enzymes with peritoneal macrophages. Calcium ions were found to be necessary for the appearance of the stimulating effect of acidic polysaccharides from *V. opulus*.

L6 ANSWER 24 OF 27 MEDLINE on STN  
ACCESSION NUMBER: 1999272989 MEDLINE  
DOCUMENT NUMBER: PubMed ID: 10341443  
TITLE: Cell wall antibodies without immunization: generation and use of de-esterified homogalacturonan block-specific antibodies from a naive phage display library.  
AUTHOR: Willats W G; Gilmartin P M; Mikkelsen J D; Knox J P  
CORPORATE SOURCE: Centre for Plant Sciences, University of Leeds, UK.  
SOURCE: The Plant journal : for cell and molecular biology, (1999 Apr) Vol. 18, No. 1, pp. 57-65.  
Journal code: 9207397. ISSN: 0960-7412.  
PUB. COUNTRY: ENGLAND: United Kingdom  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
(RESEARCH SUPPORT, NON-U.S. GOV'T)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals; Space Life Sciences  
ENTRY MONTH: 199907  
ENTRY DATE: Entered STN: 15 Jul 1999  
Last Updated on STN: 15 Jul 1999  
Entered Medline: 6 Jul 1999

AB Homogalacturonan (HG) is a multi-functional pectic polysaccharide of primary cell walls involved in calcium cross-linking and gel formation, and the regulation of ionic status and porosity of the cell wall matrix, and is a source of oligosaccharins functioning in development and defence. Phage display monoclonal antibodies with specificity for de-esterified stretches ('blocks') of pectic HG have been isolated from a naive phage display library without the need for immunization of animals or conjugation of an oligosaccharide to protein. These antibodies, designated PAM1 and PAM2, bind specifically to de-esterified and



un-substituted HG. Assays with a series of pectins de-esterified by the action of plant or fungal pectin methyl esterases indicated that the antibodies were specific to de-esterified blocks resulting from the blockwise action of plant pectin methyl esterases. Analysis of antibody binding to a series of oligogalacturonides indicated that optimal binding required in the region of 30 de-esterified GalA residues. The recognition of such a large epitope by these antibodies allows the HG block architecture of primary cell walls to be identified and localized for the first time. Furthermore, we have demonstrated that monoclonal antibodies with high specificity and avidity to cell wall epitopes can be generated using a 'single pot' phage display approach.

L6 ANSWER 25 OF 27 MEDLINE on STN  
 ACCESSION NUMBER: 95090027 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 7997470  
 TITLE: Polyclonal antibody against a complement-activating pectin from the roots of *Angelica acutiloba*.  
 AUTHOR: Wang N L; Kiyohara H; Matsumoto T; Otsuka H; Hirano M; Yamada H  
 CORPORATE SOURCE: Oriental Medicine Research Center, Kitasato Institute, Tokyo, Japan.  
 SOURCE: *Planta medica*, (1994 Oct) Vol. 60, No. 5, pp. 425-9. Journal code: 0066751. ISSN: 0032-0943.  
 PUB. COUNTRY: GERMANY: Germany, Federal Republic of  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE) (RESEARCH SUPPORT, NON-U.S. GOV'T)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 199501  
 ENTRY DATE: Entered STN: 26 Jan 1995  
 Last Updated on STN: 26 Jan 1995  
 Entered Medline: 19 Jan 1995

AB Anti-sera against a complement-activating pectin (AR-2IIb), which was purified from the roots of *Angelica acutiloba* Kitagawa, were obtained by immunization of rabbits, and a polyclonal anti-AR-2IIb antibody of the IgG class was purified by affinity chromatography on AR-2IIb-immobilized Sepharose and Protein G-Sepharose. Periodate oxidation of AR-2IIb significantly reduced its inhibitory activity on the reactivity of AR-2IIb to anti-AR-2IIb-IgG, but pronase digestion of AR-2IIb did not affect its inhibitory activity. Other pharmacologically active pectins from *A. acutiloba*, *Bupleurum falcatum*, and *Glycyrrhiza uralensis* and the complement-activating pectic arabinogalactan from *A. acutiloba* also showed significant inhibitory activities on the reactivity of AR-2IIb to anti-AR-2IIb-IgG, but these inhibitory activities were lower than that of AR-2IIb. Other pectins, polygalacturonic acid, arabinogalactan, galactan, and araban tested had negligible inhibitory activity. Endo-a-(1-->4)-polygalacturonase digestion of AR-2IIb indicated that its "ramified" region (rhamnogalacturonan core possessing neutral oligosaccharide side-chains) contained epitopes for anti-AR-2IIb-IgG, but that 2-keto-3-deoxyoctulosonic acid (KDO)-containing regions and oligogalacturonides obtained from AR-2IIb were not recognized by anti-AR-2IIb-IgG. Although carboxyl-reduction of galacturonic acid in the "ramified" region decreased the inhibitory activity of the "ramified" on its reactivity to anti-AR-2IIb, an acidic tetrasaccharide unit in the rhamnogalacturonan core had negligible inhibitory activity.

L6 ANSWER 26 OF 27 MEDLINE on STN  
 ACCESSION NUMBER: 94211907 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 7512736  
 TITLE: Generation of monoclonal antibodies against plant cell-wall polysaccharides. I. Characterization of a monoclonal antibody to a terminal alpha-(1-->2)-linked



fucosyl-containing epitope.  
AUTHOR: Puhlmann J; Bucheli E; Swain M J; Dunning N; Albersheim P;  
Darvill A G; Hahn M G  
CORPORATE SOURCE: University of Georgia, Complex Carbohydrate Research  
Center, Athens 30602-4712.  
SOURCE: Plant physiology, (1994 Feb) Vol. 104, No. 2, pp. 699-710.  
Journal code: 0401224. ISSN: 0032-0889.  
PUB. COUNTRY: United States  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
(RESEARCH SUPPORT, NON-U.S. GOV'T)  
(RESEARCH SUPPORT, U.S. GOV'T, NON-P.H.S.)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals; Space Life Sciences  
ENTRY MONTH: 199405  
ENTRY DATE: Entered STN: 26 May 1994  
Last Updated on STN: 29 Jan 1996  
Entered Medline: 16 May 1994

AB Monoclonal antibodies (McAbs) generated against rhamnogalacturonan I  
(RG-I) purified from suspension-cultured sycamore maple (Acer  
pseudoplatanus) cells fall into three recognition groups. Four McAbs  
(group I) recognize an epitope that appears to be immunodominant  
and is present on RG-I from maize and sycamore maple, pectin and  
polygalacturonic acid from citrus, gum tragacanth, and membrane  
glycoproteins from suspension-cultured cells of maize, tobacco, parsley,  
bean, and sycamore maple. A second set of McAbs (group II) recognizes an  
epitope present in sycamore maple RG-I but does not bind to any of the  
other polysaccharides or glycoproteins recognized by group I. Lastly, one  
McAb, CCRC-M1 (group III), binds to RG-I and more strongly to xyloglucan  
(XG) from sycamore maple but not to maize RG-I, citrus polygalacturonic  
acid, or to the plant membrane glycoproteins recognized by group I. The  
epitope to which CCRC-M1 binds has been examined in detail. Ligand  
competition assays using a series of oligosaccharides derived  
from or related to sycamore maple XG demonstrated that a terminal  
alpha-(1-->2)-linked fucosyl residue constitutes an essential part of the  
epitope recognized by CCRC-M1. Oligosaccharides containing this  
structural motif compete with intact sycamore maple XG for binding to the  
antibody, whereas structurally related oligosaccharides, which  
do not contain terminal fucosyl residues or in which the terminal fucosyl  
residue is linked alpha-(1-->3) to the adjacent glycosyl residue, do not  
compete for the antibody binding site. The ligand binding assays also  
indicate that CCRC-M1 binds to a conformationally dependent structure of  
the polysaccharide. Other results of this study establish that some of  
the carbohydrate epitopes of the plant extracellular matrix are shared  
among different macromolecules.

L6 ANSWER 27 OF 27 MEDLINE on STN  
ACCESSION NUMBER: 93044477 MEDLINE  
DOCUMENT NUMBER: PubMed ID: 2152163  
TITLE: Analysis of tomato polygalacturonase expression in  
transgenic tobacco.  
AUTHOR: Osteryoung K W; Toenjes K; Hall B; Winkler V; Bennett A B  
CORPORATE SOURCE: Mann Laboratory, Department of Vegetable Crops, University  
of California, Davis 95616.  
SOURCE: The Plant cell, (1990 Dec) Vol. 2, No. 12, pp. 1239-48.  
Journal code: 9208688. ISSN: 1040-4651.  
PUB. COUNTRY: United States  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
(RESEARCH SUPPORT, NON-U.S. GOV'T)  
(RESEARCH SUPPORT, U.S. GOV'T, NON-P.H.S.)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals; Space Life Sciences  
ENTRY MONTH: 199212  
ENTRY DATE: Entered STN: 22 Jan 1993  
Last Updated on STN: 22 Jan 1993

Entered Medline: 4 Dec 1992

AB Tomato polygalacturonase is a cell wall enzyme secreted in large amounts during tomato fruit ripening. Polygalacturonase is synthesized as a glycoprotein precursor that undergoes numerous cotranslational and post-translational processing steps during its maturation, yielding three isozymes in tomato fruit, PG1, PG2A, and PG2B. To investigate the physiological roles of the three isozymes and the functional significance of the polygalacturonase processing domains in its intracellular transport and activity, we have examined polygalacturonase expression in transgenic tobacco plants. A full-length polygalacturonase cDNA was placed under control of the cauliflower mosaic virus 35S promoter and introduced into tobacco by way of Agrobacterium-mediated transformation. Analysis of transgenic tobacco plants indicated that (1) immunologically detectable polygalacturonase can be extracted from leaves, roots, and stems of transgenic tobacco plants; (2) only PG2A and PG2B were detectable in transgenic tobacco; (3) the polygalacturonase isozymes present in transgenic tobacco were electrophoretically indistinguishable from the tomato isozymes; (4) the N-terminal sequence, degree of N-linked glycosylation, and extent of oligosaccharide processing were similar in polygalacturonase from transgenic tobacco and tomato; (5) polygalacturonase was properly localized in cell walls of transgenic tissue; (6) the protein was enzymatically active in vitro; however; (7) accumulation of PG2A and PG2B in cell walls of transgenic tobacco did not result in pectin degradation in vivo. These results indicated that tomato polygalacturonase was properly processed and transported to the cell wall of tobacco. However, accumulation of the two polygalacturonase isozymes expressed in this heterologous host was insufficient to promote polyuronide degradation in tobacco leaf tissue.

L6 ANSWER 1 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:949227 CAPLUS  
DOCUMENT NUMBER: 145:313891  
TITLE: Nutraceutical sorghum soft candy with constipation  
relieving effect  
INVENTOR(S): Wang, Jin  
PATENT ASSIGNEE(S): Xinjiang Qiji Institute of Materia Medica, Peop. Rep.  
China  
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 3pp.  
CODEN: CNXXEV  
DOCUMENT TYPE: Patent  
LANGUAGE: Chinese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 1698451	A	20051123	CN 2005-10072458	20050514

PRIORITY APPLN. INFO.: CN 2005-10072458 20050514

AB The title soft candy is prepared on the basis of existent sorghum soft candy with addition of polydextrose. The formula of the inventive soft candy comprises polydextrose 10-20 Kg, white granulated sugar 50 Kg or xylitol 10 Kg, starch 6 Kg, malic acid 20 g, citric acid 30 g, lard 900 g, and water 35 Kg. The product is rich in natural orgs., including glucomannan, fructo-oligosaccharide, polydextrose, and natural pectin. It is helpful to the patients with constipation or diabetes and has immunity effect. The soft candy has good and soft taste, and is suitable for the elderly and children.

L6 ANSWER 2 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:938084 CAPLUS  
DOCUMENT NUMBER: 145:313759  
TITLE: Nutraceutical sorghum candy containing Glycyrrhiza  
INVENTOR(S): Wang, Jin  
PATENT ASSIGNEE(S): Xinjiang Qiji Institute of Materia Medica, Peop. Rep.  
China  
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 3pp.  
CODEN: CNXXEV  
DOCUMENT TYPE: Patent  
LANGUAGE: Chinese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
CN 1698450	A	20051123	CN 2005-10072455	20050514

PRIORITY APPLN. INFO.: CN 2005-10072455 20050514

AB The title sorghum candy is manufactured on the basis of existent sorghum candy with addition of Glycyrrhiza. The formula of the sorghum candy comprises Glycyrrhiza 1-5 Kg, white granulated sugar 50 Kg or xylitol 10 Kg, starch 6 Kg, malic acid 20 g, citric acid 30 g, lard 900 g, and water 35 Kg. The sorghum candy is rich in natural orgs., including glucomannan as dietary fiber, fructo-oligosaccharide, polyglucose, and natural pectin. The sorghum candy can be helpful to the patients with diabetes, and has immunity improving effect. The sorghum candy has good taste, and is suitable for the elderly and children.

L6 ANSWER 3 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:643971 CAPLUS  
DOCUMENT NUMBER: 145:82523  
TITLE: Kaoliang cerealose containing pollen  
INVENTOR(S): Wang, Jin  
PATENT ASSIGNEE(S): Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 3 pp.  
 CODEN: CNXXEV  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Chinese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1685919	A	20051026	CN 2005-10072456	20050514
PRIORITY APPLN. INFO.:			CN 2005-10072456	20050514

AB The title kaoliang cerealose is produced from pollen 1-5 kg, white granulated sugar 50 kg, starch 6 kg, malic acid 20 g, citric acid 30 g, lard 900 g, banana essence 100 mL, water 35 kg, and edible pigment in an appropriate amount. The kaoliang cerealose is rich in glucomannan, fructooligosaccharide, polydextrose, pectin, and pollen, and can be used as the health food assisting in treating diabetes mellitus and stimulating immunity.

L6 ANSWER 4 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:458440 CAPLUS  
 DOCUMENT NUMBER: 145:418023  
 TITLE: Human milk oligosaccharides affect P-selectin binding capacities: in vitro investigation  
 AUTHOR(S): Schumacher, Gabriele; Bendas, Gerd; Stahl, Bernd; Beermann, Christopher  
 CORPORATE SOURCE: Pharmacy, Pharmaceutical Chemistry, Rheinische Friedrich Wilhelms University Bonn, Bonn, Germany  
 SOURCE: Nutrition (New York, NY, United States) (2006), 22(6), 620-627  
 CODEN: NUTRER; ISSN: 0899-9007  
 PUBLISHER: Elsevier Inc.

DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Objective: In the initial phase of cellular immune response, selectins mediate the emigration of leukocytes from the blood stream into inflammatory regions. Human milk oligosaccharides (HMOs) possess binding epitopes of selectin ligands such as sialyl Lewisx and sialyl Lewisy and therefore might impair the interaction of selectins with cellular ligands. Neutral, acidic, sialylated, or fucosylated HMO fractions with polymerization degrees of 3 to 50 were investigated regarding this interaction in a dynamic flow chamber model that considers physiol. shear stress conditions. Methods: Human milk oligosaccharides were compared with  $\kappa$ -carrageenans and pectin oligosaccharides to deduce structure-activity relations. Fucoidan and sialyl Lewisx served as pos. controls. Results: All HMO fractions affected P-selectin ligand binding capacity but were not comparable to fucoidan. The activity of the acidic HMO fraction resembled sialyl Lewisx in decreasing the binding of the ligand to P-selectin. Conclusion: Human milk oligosaccharides modulate rather than block the function of P-selectin.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1256390 CAPLUS  
 DOCUMENT NUMBER: 144:270549  
 TITLE: Biochemical and immunohistochemical analysis of pectic polysaccharides in the cell walls of Arabidopsis mutant QUASIMODO 1 suspension-cultured cells: implications for cell adhesion  
 AUTHOR(S): Leboeuf, Edouard; Guillon, Fabienne; Thoirion, Severine; Lahaye, Marc



CORPORATE SOURCE: Interactions, Assemblages, INRA-Biopolymeres, Nantes,  
F-44316, Fr.  
SOURCE: Journal of Experimental Botany (2005), 56(422),  
3171-3182  
CODEN: JEBOA6; ISSN: 0022-0957  
PUBLISHER: Oxford University Press  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Mutation in the Arabidopsis thaliana QUASIMODO 1 gene (QUA1), which encodes a putative glycosyltransferase, reduces cell wall pectin content and cell adhesion. Suspension-cultured calli were generated from roots of wild-type (wt) and qual-1 A. thaliana plants. The altered cell adhesion phenotype of the qual-1 plant was also found with its suspension-cultured calli. Cell walls of both wt and qual-1 calli were analyzed by chemical, enzymic and immunohistochem. techniques in order to assess the role of pectic polysaccharides in the mutant phenotype. Compared with the wt, qual-1 calli cell walls contained more arabinose (23.6 vs. 21.6 mol%), rhamnose (3.1 vs. 2.7 mol%), and fucose (1.4 vs. 1.2 mol%) and less uronic acid (24.2 vs. 27.6 mol%), and they were less methyl-esterified (DM: 22.9% vs. 30.3%). When sequential pectin extraction of calli cell walls was performed, qual-1 water-soluble and chelator-soluble exts. contained more arabinose and less uronic acid than weight. Water-soluble pectins were less methyl-esterified in qual-1 than in weight. Chelator-soluble pectins were more acetyl-esterified in qual-1. Differences in the cell wall chemical of wt and mutant calli were supported by a reduction in JIM7 labeling (methyl-esterified homogalacturonan) of the whole wall in small cells and particularly by a reduced labeling with 2F4 (calcium-associated homogalacturonan) in the middle lamella at tricellular junctions of large qual-1 cells. Differences in the oligosaccharide profile obtained after endopolygalacturonase degradation of alkali exts. from qual-1 and wt calli indicated variations in the structure of covalently bonded homogalacturonan. About 29% more extracellular polymers rich in pectins were recovered from the calli culture medium of qual-1 compared with weight. These results show that perturbation of QUASIMODO 1-1 gene expression in calli resulted in alterations of homogalacturonan content and cell wall location. The consequences of these structural variations are discussed with regard to plant cell adhesion.

REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 6 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1097314 CAPLUS  
DOCUMENT NUMBER: 144:229291  
TITLE: Distribution of pectic epitopes in cell walls of the  
sugar beet root  
AUTHOR(S): Guillemain, Florence; Guillon, Fabienne; Bonnin,  
Estelle; Devaux, Marie-Francoise; Chevalier, Therese;  
Knox, J. Paul; Liners, Francoise; Thibault,  
Jean-Francois  
CORPORATE SOURCE: Unite de Recherche sur les Polysaccharides, leurs  
Organisations et Interactions, Institut National de la  
Recherche Agronomique, Nantes, 44316, Fr.  
SOURCE: Planta (2005), 222(2), 355-371  
CODEN: PLANAB; ISSN: 0032-0935  
PUBLISHER: Springer  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Immunolabelling techniques with antibodies specific to partially methyl-esterified homogalacturonan (JIM5: unesterified residues flanked by methylesterified residues, JIM7: methyl-esterified residues flanked by unesterified residues), a blockwise de-esterified homogalacturonan (2F4), 1,4-galactan (LM5) and 1,5-arabinan (LM6) were used to map the distribution of pectin motifs in cell walls of sugar beet root



(Beta vulgaris). PME and alkali treatments of sections were used in conjunction with JIM5-7 and 2F4. The JIM7 epitope was abundant and equally distributed in all cells. In storage parenchyma, the JIM5 epitope was restricted to some cell junctions and the lining of intercellular spaces while in vascular tissues it occurred at cell junctions in some phloem walls and in xylem derivs. After secondary wall formation, the JIM5 epitope was restricted to inner cell wall regions between secondary thickenings. The 2F4 epitope was not detected without de-esterification treatment. PME treatments prior to the use of 2F4 indicated that HG at cell corners was not acetylated. The LM5 epitope was mainly present in the cambial zone and when present in storage parenchyma, it was restricted to the wall region closest to the plasma membrane. The LM6 epitope was widely distributed throughout primary walls but was more abundant in bundles than in medullar ray tissue and storage parenchyma. These data show that the occurrence of oligosaccharide motifs of pectic polysaccharides are spatially regulated in sugar beet root cell walls and that the spatial patterns vary between cell types suggesting that structural variants of pectic polymers are involved in the modulation of cell wall properties.

REFERENCE COUNT: 54 THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 7 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:707083 CAPLUS  
DOCUMENT NUMBER: 141:380090  
TITLE: Synthesis of oligogalacturonates conjugated to BSA  
AUTHOR(S): Clausen, Mads; Madsen, Robert  
CORPORATE SOURCE: Department of Chemistry, Technical University of Denmark, Lyngby, DK-2800, Den.  
SOURCE: Carbohydrate Research (2004), 339(13), 2159-2169  
CODEN: CRBRAT; ISSN: 0008-6215  
PUBLISHER: Elsevier B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 141:380090

AB The synthesis of three oligogalacturonates with an aldehyde spacer attached at the reducing end is described. Trigalacturonates  $\alpha$ -D-GalpA-(1 $\rightarrow$ 4)- $\alpha$ -D-GalpA-(1 $\rightarrow$ 4)- $\alpha$ -D-GalpA-(1 $\rightarrow$ O(CH<sub>2</sub>)<sub>7</sub>CHO) and  $\alpha$ -D-GalpA(Me)-(1 $\rightarrow$ 4)- $\alpha$ -D-GalpA(Me)-(1 $\rightarrow$ 4)- $\alpha$ -D-GalpA(Me)-(1 $\rightarrow$ O(CH<sub>2</sub>)<sub>7</sub>CHO) as well as hexagalacturonate  $\alpha$ -D-GalpA-(1 $\rightarrow$ 4)-[ $\alpha$ -D-GalpA-(1 $\rightarrow$ 4)]<sub>4</sub>- $\alpha$ -D-GalpA-(1 $\rightarrow$ O(CH<sub>2</sub>)<sub>7</sub>CHO) are prepared by stepwise coupling of galactose units followed by oxidation of the 6-positions. The  $\alpha$ -linkages are formed by employing n-pentenyl galactosides as glycosyl donors and N-iodosuccinimide/triethylsilyl triflate as the promoter. Deprotection furnishes the three target oligogalacturonates, which are subsequently linked to bovine serum albumin by reductive amination. These neoglycoproteins will serve as immunogens for generation of new antibodies that can be used for localization and characterization of pectin in plants.

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 8 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:488358 CAPLUS  
DOCUMENT NUMBER: 135:262084  
TITLE: Characterization of pectic polysaccharides having intestinal immune system modulating activity from rhizomes of Atractylodes lancea DC  
AUTHOR(S): Yu, K.-W.; Kiyohara, H.; Matsumoto, T.; Yang, H.-C.; Yamada, H.  
CORPORATE SOURCE: Oriental Medicine Research Center, The Kitasato Institute, Minato-ku, Tokyo, 108-8642, Japan  
SOURCE: Carbohydrate Polymers (2001), 46(2), 125-134

CODEN: CAPOD8; ISSN: 0144-8617  
PUBLISHER: Elsevier Science Ireland Ltd.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Two acidic polysaccharides (ALR-a and ALR-b, former names ALR-5IIb-2-2 and 5IIc-3-1, resp.; although ALR-5IIb-2-2 and 5IIc-3-1 were used as their abbreviations in a previous paper (Planta Med., 64 (1998) 714), here the polysaccharides have been abbreviated to ALR-a and ALR-b, resp., in order to avoid complexity) have been purified from rhizomes of *Atractylodes lancea* DC. as intestinal immune system modulating polysaccharides (Planta Med., 64 (1998) 714). Endo- $\alpha$ -d-(1 4)-polygalacturonase digestion of ALR-b gave large proportions of a fragment (PG-1) eluted in the void volume, and the lowest-mol.-weight fraction (PG-3) in addition to a small proportion of intermediate fraction (PG-2). Component sugar and methylation analyses using base-catalyzed  $\beta$ -elimination indicated that PG-1 consisted of a rhamnogalacturonan core with side chains rich in neutral sugars and that PG-3 mainly contained (1 4)-linked galacturono-oligosaccharides. PG-2 comprised characteristic component sugars such as 2-Me-Fuc, 2-Me-Xyl, apiose (Api) and aceric acid (AceA), but PG-2 lacked some glycosidic linkages compared with those of the typical rhamnogalacturonan II (RG-II). PG-2 showed potent intestinal immune system modulating activity, but PG-1 and galacturono-oligosaccharides in PG-3 had no activity. Further gel filtration and anion-exchange chromatog. of ALR-a gave a potent intestinal immune system modulating polysaccharide (ALR-a-Bb). Component sugar and methylation analyses indicated that ALR-a-Bb also comprised unusual component sugars characteristic in RG-II as well as PG-2 derived from ALR-b. ALR-a-Bb or PG-2 from ALR-b little affected directly the proliferation of bone marrow cells. PG-2 from ALR-b expressed similar significant intestinal immune system modulating activity to RG-II (GL-R1) isolated from leaves of *Panax ginseng* C.A. Meyer, but RG-II obtained from a pharmacol. active pectin (bupleuran 2IIb) of *Bupleurum falcatum* L. had no activity.

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 9 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 2001:407943 CAPLUS  
DOCUMENT NUMBER: 134:371758  
TITLE: Bacteria- and fiber-containing composition for human gastrointestinal health  
INVENTOR(S): Paul, Stephen M.; Katke, Jeffrey J.; Krumhar, Kim Carleton  
PATENT ASSIGNEE(S): Metagenics, Inc., USA  
SOURCE: U.S., 13 pp., Cont.-in-part of U.S. Ser. No. 62,204.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 3  
PATENT INFORMATION: .

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6241983	B1	20010605	US 1999-320429	19990526
US 5531988	A	19960702	US 1994-331140	19941028
US 5531989	A	19960702	US 1995-437316	19950509
US 5744134	A	19980428	US 1996-674115	19960701
US 6180099	B1	20010130	US 1998-62204	19980417
AU 774675	B2	20040701	AU 2001-87235	20011101
PRIORITY APPLN. INFO.:			US 1994-331140	A2 19941028
			US 1995-437316	A1 19950509
			US 1996-674115	A1 19960701
			US 1998-62204	A2 19980417
			AU 1999-59577	A3 19991119

AB A composition for promoting gastrointestinal health contains an effective amount

of a beneficial human intestinal microorganism and an effective amount of dietary fiber. Preferably, the dietary fiber is selected from the group consisting of pentosans,  $\beta$ -glucans, pectins and pectic polysaccharides, mannans, arabinans and galactans, fructooligosaccharides, and mixts. thereof. The bacteria- and fiber-containing composition can optionally contain one or more of an Ig

composition

containing concentrated immunol. active Igs, components of a non-immune defense system, an iron-sequestering mol., and gluconic acid. Preferred beneficial human intestinal microorganisms include lactobacilli and bifidobacteria. Thus, a formulation may contain inulin 40, pectin 9.98, Ig composition 40, Bifidobacterium adolescentis 10, and lactoperoxidase 0.02%. Methods of use are also described.

REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 10 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:76491 CAPLUS

DOCUMENT NUMBER: 134:277416

TITLE: Preservation of the delayed-type hypersensitivity response to alloantigen by xyloglucans or oligogalacturonide does not correlate with the capacity to reject ultraviolet-induced skin tumors in mice

AUTHOR(S): Strickland, Faith M.; Sun, Yan; Darvill, Alan; Eberhard, Stefan; Pauly, Markus; Albersheim, Peter  
CORPORATE SOURCE: Department of Immunology-178, The University of Texas MD Anderson Cancer Center, Houston, TX, 77030, USA  
SOURCE: Journal of Investigative Dermatology (2001), 116(1), 62-68

CODEN: JIDEAE; ISSN: 0022-202X

PUBLISHER: Blackwell Science, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Chronic exposure to UV radiation suppresses T cell-mediated immune responses and induces the formation of suppressor T lymphocytes that prevent the rejection of highly antigenic UV-induced skin cancers in mice. Tamarind seed xyloglucans and pectinic oligogalacturonides prevent suppression of delayed-type hypersensitivity immune responses in mice to Candida albicans and alloantigen caused by a single exposure of UV radiation. We therefore investigated the ability of these poly/oligosaccharides to prevent suppression of T cell-mediated immune responses and suppressor cell induction during chronic UV irradiation and to preserve the capacity of UV-irradiated mice to reject a transplanted, highly antigenic, UV-induced tumor. C3H/HeN mice were treated 3+ per wk for 12 wk with 15 kJ per m<sup>2</sup> UV B radiation followed by application of the polysaccharides/oligosaccharides. The delayed-type hypersensitivity responses to C. albicans and alloantigen were measured after 1, 6, and 12 wk of treatment. Following the 12th wk of treatment the remaining mice were injected with the highly antigenic UV-induced, syngeneic tumor cell line UV5497-5. The polysaccharides/oligosaccharides protected delayed-type hypersensitivity responses to C. albicans but not contact hypersensitivity responses to dinitrofluorobenzene for up to 6 wk of UV radiation after which protection declined and suppressor cells were observed. In contrast, the delayed-type hypersensitivity response to alloantigen was preserved for the entire 12 wk of UV irradiation. Despite protection of immunity to alloantigen, the transplanted tumor cells grew equally well in all UV-irradiated animals. These results indicate that delayed-type hypersensitivity responses are heterogeneous and that delayed-type hypersensitivity to alloantigen is not a surrogate marker for rejection of UV-induced skin tumors.

REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 11 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:539140 CAPLUS

DOCUMENT NUMBER: 133:235143

TITLE: The isolation, preliminary structural studies, and  
physiological activity of water-soluble  
polysaccharides from the squeezed berries of the  
snowball tree *Viburnum opulus*

AUTHOR(S): Ovodova, R. G.; Golovchenko, V. V.; Popov, S. V.;  
Shashkov, A. S.; Ovodov, Yu. S.

CORPORATE SOURCE: Institute of Physiology, Komi Research Center, Urals  
Branch, Russian Academy of Sciences, Syktyvkar,  
167610, Russia

SOURCE: Russian Journal of Bioorganic Chemistry (Translation  
of *Bioorganicheskaya Khimiya*) (2000), 26(1), 54-59  
CODEN: RJBCET; ISSN: 1068-1620

PUBLISHER: MAIK Nauka/Interperiodica

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Water-soluble polysaccharide fractions VO1-VO4 were isolated from the  
squeezed berries of the snowball tree (*Viburnum opulus*) by successive  
extraction with water at various temps. and pH and with aqueous solns. of  
ammonium

oxalate. These fractions were purified by ion-exchange chromatog. on DEAE  
cellulose, and the homogeneity of the purified polysaccharides was determined  
by gel filtration on Sephacryl S-500. Acidic polysaccharides close to  
pectins in their sugar composition were found in all the exts.

(fractions VO1-1, VO2-1, VO3-2, and VO4-2). Residues of galacturonic  
acid, galactose, arabinose, and (to a lesser extent) rhamnose are their  
main constituents. Neutral polysaccharides composed mainly of galactose  
and mannose residues were addnl. found in fractions extracted with acidified  
water (pH 4.0) and with aqueous ammonium oxalate solns. Partial acidic  
hydrolysis and digestion with pectinase of acidic

polysaccharides indicated that their carbohydrate backbone consists of  
 $\alpha$ -1,4-linked residues of D-galacturonic acid. NMR spectra of acidic  
polysaccharides (fractions VO3-2 and VO3-3) confirmed this and  
demonstrated that their side oligosaccharide chains are composed  
of  $\beta$ -1,4-linked galactopyranose residues and of terminal and 2,5- and  
3,5-substituted residues of  $\alpha$ -arabinofuranose at a Gal:Ara ratio of  
3:1. Some polysaccharides from *V. opulus* were found to possess an  
immunostimulating activity: they enhance phagocytosis, in  
particular, the phagocytic index and the secretion of lysosomal enzymes  
with peritoneal macrophages. Calcium ions were found to be necessary for  
the appearance of the stimulating effect of acidic polysaccharides from *V.*  
*opulus*.

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 12 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:308970 CAPLUS

DOCUMENT NUMBER: 131:169005

TITLE: Cell wall antibodies without immunization: generation  
and use of de-esterified homogalacturonan  
block-specific antibodies from a naive phage display  
library

AUTHOR(S): Willats, William G. T.; Gilmartin, Philip M.;  
Mikkelsen, Jorn Dalgaard; Knox, J. Paul

CORPORATE SOURCE: Centre for Plant Sciences, University of Leeds, Leeds,  
LS2 9JT, UK

SOURCE: Plant Journal (1999), 18(1), 57-65  
CODEN: PLJUED; ISSN: 0960-7412

PUBLISHER: Blackwell Science Ltd.



DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Homogalacturonan (HG) is a multi-functional pectic polysaccharide of primary cell walls involved in calcium crosslinking and gel formation, and the regulation of ionic status and porosity of the cell wall matrix, and is a source of oligosaccharins functioning in development and defense. Phage display monoclonal antibodies with specificity for de-esterified stretches ('blocks') of pectic HG have been isolated from a naive phage display library without the need for immunization of animals or conjugation of an oligosaccharide to protein. These antibodies, designated PAM1 and PAM2, bind specifically to de-esterified and un-substituted HG. Assays with a series of pectins de-esterified by the action of plant or fungal pectin Me esterases indicated that the antibodies were specific to de-esterified blocks resulting from the blockwise action of plant pectin Me esterases. Anal. of antibody binding to a series of oligogalacturonides indicated that optimal binding required in the region of 30 de-esterified GalA residues. The recognition of such a large epitope by these antibodies allows the HG block architecture of primary cell walls to be identified and localized for the first time. Furthermore, the authors have demonstrated that monoclonal antibodies with high specificity and avidity to cell wall epitopes can be generated using a 'single pot' phage display approach.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 13 OF 27 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1996:452706 CAPLUS  
DOCUMENT NUMBER: 125:123729  
TITLE: Immunoglobulin and fiber-containing composition for human gastrointestinal health  
INVENTOR(S): Paul, Stephen M.  
PATENT ASSIGNEE(S): Metagenics, Inc., USA  
SOURCE: U.S., 10 pp., Cont.-in-part of U.S. Ser. No. 331,140.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 3  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5531989	A	19960702	US 1995-437316	19950509
US 5531988	A	19960702	US 1994-331140	19941028
CA 2203762	A1	19960509	CA 1995-2203762	19951027
WO 9613271	A1	19960509	WO 1995-US13905	19951027
W:	AL, AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK			
RW:	KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG			
AU 9540136	A	19960523	AU 1995-40136	19951027
AU 709155	B2	19990819		
EP 787006	A1	19970806	EP 1995-938934	19951027
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE			
EP 1262192	A2	20021204	EP 2002-14291	19951027
EP 1262192	A3	20030205		
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE			
US 5744134	A	19980428	US 1996-674115	19960701
US 6180099	B1	20010130	US 1998-62204	19980417
US 6241983	B1	20010605	US 1999-320429	19990526
AU 9959577	A1	20000217	AU 1999-59577	19991119

AU 742479	B2	20020103		
AU 774675	B2	20040701	AU 2001-87235	20011101
PRIORITY APPLN. INFO.:			US 1994-331140	A2 19941028
			US 1995-437316	A 19950509
			EP 1995-938934	A3 19951027
			WO 1995-US13905	W 19951027
			US 1996-674115	A1 19960701
			US 1998-62204	A2 19980417
			AU 1999-59577	A3 19991119

AB A composition for restoring and maintaining gastrointestinal health comprises 40-60% by weight of an Ig composition comprising concentrated immunol. active Igs and 40-60% by weight of soluble dietary fiber selected from inulin, fructo-oligosaccharides, pectin, guar gum, and mixts. thereof.

The Ig and fiber-containing composition can optionally contain one or more of a beneficial human intestinal microorganism, components of a non-immune natural defense system, an iron-sequestering mol., and gluconic acid. Preferred beneficial human intestinal microorganisms include lactobacilli and bifidobacteria. The immunol. active Igs are preferably purified from bovine milk, milk products, or whey. Methods of use are also described.

L9 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:404450 CAPLUS

DOCUMENT NUMBER: 121:4450

TITLE: Immobilization of pectin, xyloglucan and other soluble plant polysaccharides on blotting membranes

AUTHOR(S): Jeffree, Christopher E.

CORPORATE SOURCE: Sci. Fac., Univ. Edinburgh, Edinburgh, EH9 3JH, UK

SOURCE: New Phytologist (1993), 125(4), 695-706

CODEN: NEPHAV; ISSN: 0028-646X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Soluble polysaccharides, of natural and synthetic origins, are immobilized by nylon, nitrocellulose, and polyvinylidene difluoride blotting membranes. Retention of an acid and a neutral polysaccharide, measured using radioactive pectin and xyloglucan-rich hemicellulose, exceeded 90% on some blotting membranes eluted in aqueous media. The 2 polysaccharides displayed different binding characteristics. Several polyanionic uronic acid polysaccharides bound strongly to nylon 66 (Hybond N, Amersham) and to pos. charge-modified or cationic nylon blotting membranes (Hybond N+, Amersham), but much less strongly to paper, nitrocellulose, or polyvinylidene difluoride. Fragments of pectin, including Rhamnogalacturonan I and Rhamnogalacturonan II, and galacturonic acid oligosaccharides as small as the dimer also bind to nylon membranes, and can be detected using cationic dyes or by means of their radioactivity. Xyloglucan-rich hemicellulose in general binds more strongly than pectin to the same substrates. Of the substrates tested, charge-modified nylon gave the best retention of pectin, and paper gave the best retention of xyloglucan during washes in water and solns. of salts, acids, and bases. The influence of pH and solns. of mono, di-, and trivalent salts on the retention of some pectic polysaccharides by nylon was investigated. A large proportion, in excess of 70% of pectin applied to charge-modified nylon, remained tightly bound at all salt concns. up to 2M. Soluble acid polysaccharides immobilized on blotting membranes could be detected by staining with cationic dyes, such as ruthenium red, alcian blue 8GX, and coriphosphine O, providing facile detection and a simple means of characterizing the cytochem. specificity of their staining reactions. Immobilized neutral polysaccharides, which do not react with cationic dyes, could usually be detected by the periodate-Schiff reaction, or, if labeled with radionuclides, by autoradiog. or scintillation counting. Soluble polysaccharides, like proteins and nucleic acids, may therefore be immobilized on blotting membranes for investigation with cytochem., immunocytochem., and other mol. probing and detection procedures. Quant. binding data showed marked differences in the affinity of different polysaccharides for blotting substrates. Detailed characterization of the binding behavior is therefore a prerequisite for optimization and rational application of polysaccharide blotting.

L9 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1988:71760 CAPLUS

DOCUMENT NUMBER: 108:71760

TITLE: Determination of the degree of amidation of 2-deoxy-2-formamido-D-galacturonic acid in O-specific polysaccharides of Pseudomonas aeruginosa O4 and related strains

AUTHOR(S): Vinogradov, E. V.; Knirel, Yu. A.; Shashkov, S.; Kochetkov, N. K.

CORPORATE SOURCE: N. D. Zelinskii Inst. Org. Chem., Moscow, USSR

SOURCE: Carbohydrate Research (1987), 170(1), C1-C4

CODEN: CRBRAT; ISSN: 0008-6215

DOCUMENT TYPE: Journal

LANGUAGE: English

GI For diagram(s), see printed CA Issue.

AB The structure of O-specific polysaccharides was studied in *P. aeruginosa* serogroup O4, which includes subgroups O4a,4b, O4a,4c, and O4a,4d, serogroup O6, group G, and immunotype 1. The degree of amidation of 2-deoxy-2-formamidogalacturonic acid was estimated as the ratio of oligosaccharides (I) and (II) in the mixture derived from each polysaccharide. The ratio was measured by anion-exchange and reversed-phase HPLC, monitored by UV absorbance at 220 nm. In the immunotype 1 polysaccharide, each residue of this uronic acid was amidated, whereas in subgroup O4a,4c and serogroup O6 polysaccharides, each of these residues has a free carboxyl group. The subgroup O4a,4b and O4a,4d polysaccharides have 10% and 20%, resp., of their 2-deoxy-2-formamidogalacturonic acid residues amidated. As judged by anion-exchange anal., the last two polymers contain no neutral fraction, and, hence, both acidic monoamidated and neutral diamidated tetrasaccharide units are present in the same chain. The possible role of the amidation is to adjust the optimal acidity of the lipopolysaccharide layer, and it could be expected that the degree of amidation varies not only from strain to strain, but also depends on growing conditions.



L10 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:240946 CAPLUS  
DOCUMENT NUMBER: 120:240946  
TITLE: Somataglycan-S: a neuronal surface proteoglycan  
defines the spinocerebellar system  
AUTHOR(S): Williams, Celia; Hinton, David R.; Miller, Carol A.  
CORPORATE SOURCE: Sch. Med., Univ. South. California, Los Angeles, CA,  
USA  
SOURCE: Journal of Neurochemistry (1994), 62(4), 1615-30  
CODEN: JONRA9; ISSN: 0022-3042  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The formation and maintenance of functionally specific neuronal networks may depend on specific proteoglycans localized to the surface membranes of a subset of neurons. Monoclonal antibody (MAb) 6A2 labeled a distinct subset of CNS neurons: the somas and proximal dendrites of cells making up the spinocerebellar and reticular systems. These pathways contribute to proprioceptive and exteroceptive functions. Ultrastructurally, MAb 6A2 immunoreactivity was distributed focally along the cell surface membranes and the adjacent extracellular space. On western blots of immunoaffinity-purified preps. from cerebellar homogenates, a major, broad band of .apprx.400 kDa is labeled by MAb 6A2. Increased electrophoretic mobility of the purified antigen after digestion with chondroitinase ABC and keratanase suggests that the antigen is a proteoglycan bearing chondroitin sulfate and keratan sulfate glycosaminoglycans. Unsulfated N-acetylgalactosamine residues linked to unsatd. uronic acid constituted the initial disaccharide in the chondroitin sulfate glycosaminoglycan chains. N- and O-linked oligosaccharides on the core protein were detected by the biotinylated lectins wheat germ agglutinin and Jacalin, resp., and by MAb anti-HNK-1. Lyase and glycosidase digests result in a 280-kDa band. This proteoglycan, somataglycan-S, may provide a key to the role of glycoconjugates in determining neuronal diversity and system specificity.

L10 ANSWER 7 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:81773 CAPLUS  
DOCUMENT NUMBER: 116:81773  
TITLE: A monoclonal antibody (ST-1) directed to the native  
heparin chain  
AUTHOR(S): Straus, Anita H.; Travassos, Luiz R.; Takahashi, Helio  
K.  
CORPORATE SOURCE: Dep. Biochem., Esc. Paul. Med., Sao Paulo, 04023,  
Brazil  
SOURCE: Analytical Biochemistry (1992), 201(1), 1-8  
CODEN: ANBCA2; ISSN: 0003-2697  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB A mouse monoclonal antibody, ST-1, was raised against heparin complexed to Salmonella minnesota. Characterization of this antibody showed that it recognizes an epitope in the intact mol. of heparin that is present regardless of its source or anticoagulant activity. ST-1 is the first monoclonal antibody specific for the intact unmodified mol. of heparin to be described. 3H-labeled heparin in solution was immunopptd. by ST-1, and the formation of the 3H-labeled immunocomplex was selectively inhibited by unlabeled heparin. No cross-reactivity of ST-1 was observed with other glycosaminoglycans such as heparan sulfate, chondroitin sulfate, hyaluronic acid, dermatan sulfate, and keratan sulfate, or with polyanionic polymers such as dextran sulfate. Selective removal of the N-sulfate groups or N,O-desulfation of heparin strongly reduced the binding of ST-1. Inhibition of binding was also observed after carbodiimide reduction of the carboxyl groups of the uronic acid units of heparin. Competitive assays of ST-1 binding to heparin immobilized on poly-L-lysine-coated plates using

oligosaccharides of different sizes that arose from HNO<sub>2</sub> cleavage of heparin showed that the min. fragment required for reactivity of ST-1 is a decasaccharide.

L10 ANSWER 8 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1977:565850 CAPLUS

DOCUMENT NUMBER: 87:165850

TITLE: A common reactivity of sea-squirt antigens and their acidic glycopeptide fragments to various rabbit anti-sea-squirt serums

AUTHOR(S): Oka, Satoru; Tsuji, Moriyasu; Jyo, Toshihiko

CORPORATE SOURCE: Sch. Med., Univ. Hiroshima, Hiroshima, Japan

SOURCE: Arerugi (1977), 26(6), 469-74

CODEN: ARERAM; ISSN: 0021-4884

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The sea-squirt antigens (G-2, and E-2) (Oka, S., et al., 1977) were purified by gel chromatog. and anion-exchange chromatog., successively to Gi-2 and Ei-2, resp., which were digested by pronase E to yield antigenically active acidic glycopeptide fragments (Gp and Ep), resp. Removal of some sugar components from Gp and Ep fragments by treating with alkaline NaBH<sub>4</sub> produced antigenically active glycopeptide fragments (Gp-A and Ep-A), resp. The antigenic activity estimated by skin test of asthmatic patients with sea-squirt allergy was Gi-2 >> Ei-2 ≥ Gp >> Ep > Gp-A >> Ep-A. The immunoreactivity of those 6 antigen prepns. with anti-Ei2 rabbit serum, and the anti-sea squirt rabbit serum titers during immunization with those 6 antigens approx. paralleled the antigenic activities estimated in the asthmatic patients. The common antigenic moiety was determined as a sulfated oligosaccharide attached N-glycosidically to the asparaginyl residue of the polypeptide chain. The acidic oligosaccharide moiety consisted of 3-4 mol. of glucosamine, 2-3 mol. of galactosamine, 1-3 mol. of uronic acid, 3-6 mol. of sulfate and 1 mol. of asparagine.

L10 ANSWER 9 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1963:477334 CAPLUS

DOCUMENT NUMBER: 59:77334

ORIGINAL REFERENCE NO.: 59:14451a-c

TITLE: Immunochemical studies on pullulan, an extracellular polysaccharide from Pullularia pullulans

AUTHOR(S): Schlossman, Stuart F.; Zarnitz, Marie Luise; Kabat, Elvin A.; Keilich, G.; Wallenfels, Kurt

CORPORATE SOURCE: Columbia University

SOURCE: Journal of Immunology (1963), 91(1), 50-7

CODEN: JOIMA3; ISSN: 0022-1767

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB The bacterial polysaccharide (pullulan and restpullulan) prepns. were found to be antigenic in man. Pullulan and restpullulan cross-reacted strongly with types II and IX anti-pneumococcal serums. In the type II cross-reaction pullulan was more efficient than restpullulan/unit weight, while in the type IX cross-reactions restpullulan, water-restpullulan, and partially hydrolyzed fractions of restpullulan all reacted better than did pullulan. Pullulan precipitated all of the antibody in type II antiserum cross-reacting with Friedlander B polysaccharide and most of the antibody cross-reacting with dextran. The pullulan anti-type II cross-reaction was inhibited strongly by glucuronic acid and not at all or but very slightly by various glucose oligosaccharides. The immuno-chemical findings are of interest in relation to the demonstration of a uronic acid in pullulan. The cross-reaction of restpullulan with type IX antiserum is inhibited best by nigerose and maltotriose which are considerably better than maltose. Kojibiose, iso-maltotriose, and isomaltose were much less effective. The findings are consistent with the specificity of antibody in type IX antiserum

cross-reacting with restpullulan being related to  $\alpha$ -1,4-and  
 $\alpha$ -1,3-linked glucoses.

L10 ANSWER 10 OF 12 MEDLINE on STN  
ACCESSION NUMBER: 2005626051 MEDLINE  
DOCUMENT NUMBER: PubMed ID: 16263905  
TITLE: Biochemical and immunohistochemical analysis of pectic  
polysaccharides in the cell walls of Arabidopsis mutant  
QUASIMODO 1 suspension-cultured cells: implications for  
cell adhesion.  
AUTHOR: Leboeuf Edouard; Guillon Fabienne; Thoiron Severine; Lahaye  
Marc  
CORPORATE SOURCE: INRA-Biopolymeres, Interactions, Assemblages, BP 71627,  
F-44316 Nantes Cedex 3, France.  
SOURCE: Journal of experimental botany, (2005 Dec) Vol. 56, No.  
422, pp. 3171-82. Electronic Publication: 2005-11-01.  
Journal code: 9882906. ISSN: 0022-0957.  
PUB. COUNTRY: England: United Kingdom  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 200601  
ENTRY DATE: Entered STN: 29 Nov 2005  
Last Updated on STN: 21 Jan 2006  
Entered Medline: 20 Jan 2006

AB Mutation in the Arabidopsis thaliana QUASIMODO 1 gene (QUA1), which  
encodes a putative glycosyltransferase, reduces cell wall pectin content  
and cell adhesion. Suspension-cultured calli were generated from roots of  
wild-type (wt) and qual-1 A. thaliana plants. The altered cell adhesion  
phenotype of the qual-1 plant was also found with its suspension-cultured  
calli. Cell walls of both wt and qual-1 calli were analysed by chemical,  
enzymatic and immunohistochemical techniques in order to assess  
the role of pectic polysaccharides in the mutant phenotype. Compared with  
the wt, qual-1 calli cell walls contained more arabinose (23.6 versus 21.6  
mol%), rhamnose (3.1 versus 2.7 mol%), and fucose (1.4 versus 1.2 mol%)  
and less uronic acid (24.2 versus 27.6 mol%), and they  
were less methyl-esterified (DM: 22.9% versus 30.3%). When sequential  
pectin extraction of calli cell walls was performed, qual-1 water-soluble  
and chelator-soluble extracts contained more arabinose and less  
uronic acid than weight Water-soluble pectins were less  
methyl-esterified in qual-1 than in weight Chelator-soluble pectins were  
more acetyl-esterified in qual-1. Differences in the cell wall chemistry  
of wt and mutant calli were supported by a reduction in JIM7 labelling  
(methyl-esterified homogalacturonan) of the whole wall in small cells and  
particularly by a reduced labelling with 2F4 (calcium-associated  
homogalacturonan) in the middle lamella at tricellular junctions of large  
qual-1 cells. Differences in the oligosaccharide profile  
obtained after endopolygalacturonase degradation of alkali extracts from  
qual-1 and wt calli indicated variations in the structure of covalently  
bonded homogalacturonan. About 29% more extracellular polymers rich in  
pectins were recovered from the calli culture medium of qual-1 compared  
with weight These results show that perturbation of QUASIMODO 1-1 gene  
expression in calli resulted in alterations of homogalacturonan content  
and cell wall location. The consequences of these structural variations  
are discussed with regard to plant cell adhesion.

L10 ANSWER 11 OF 12 MEDLINE on STN  
ACCESSION NUMBER: 94180119 MEDLINE  
DOCUMENT NUMBER: PubMed ID: 8133288  
TITLE: Somataglycan-S: a neuronal surface proteoglycan defines the  
spinocerebellar system.  
AUTHOR: Williams C; Hinton D R; Miller C A  
CORPORATE SOURCE: Department of Pathology, University of Southern California  
School of Medicine, Los Angeles 90033.

CONTRACT NUMBER: 1R55-AG10283-01A1 (NIA)  
 5-P50-AG05142 (NIA)  
 R01-MH39145 (NIMH)  
 SOURCE: Journal of neurochemistry, (1994 Apr) Vol. 62, No. 4, pp.  
 1615-30.  
 Journal code: 2985190R. ISSN: 0022-3042.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 (RESEARCH SUPPORT, NON-U.S. GOV'T)  
 (RESEARCH SUPPORT, U.S. GOV'T, NON-P.H.S.)  
 (RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 199404  
 ENTRY DATE: Entered STN: 28 Apr 1994  
 Last Updated on STN: 28 Apr 1994  
 Entered Medline: 20 Apr 1994

AB The formation and maintenance of functionally specific neuronal networks may depend on specific proteoglycans localized to the surface membranes of a subset of neurons. Monoclonal antibody (MAb) 6A2 labeled a distinct subset of CNS neurons: the somas and proximal dendrites of cells making up the spinocerebellar and reticular systems. These pathways contribute to proprioceptive and exteroceptive functions. Ultrastructurally, MAb 6A2 immunoreactivity was distributed focally along the cell surface membranes and the adjacent extracellular space. On western blots of immunoaffinity-purified preparations from cerebellar homogenates, a major, broad band of approximately 400 kDa is labeled by MAb 6A2. Increased electrophoretic mobility of the purified antigen after digestion with chondroitinase ABC and keratanase suggests that the antigen is a proteoglycan bearing chondroitin sulfate and keratan sulfate glycosaminoglycans. Unsulfated N-acetyl-galactosamine residues linked to unsaturated uronic acid constituted the initial disaccharide in the chondroitin sulfate glycosaminoglycan chains. N- and O-linked oligosaccharides on the core protein were detected by the biotinylated lectins wheat germ agglutinin and Jacalin, respectively, and by MAb anti-HNK-1. Lyase and glycosidase digests result in a 280-kDa band. This proteoglycan, somataglycan-S, may provide a key to the role of glycoconjugates in determining neuronal diversity and system specificity.

L10 ANSWER 12 OF 12 MEDLINE on STN  
 ACCESSION NUMBER: 92321441 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 1377883  
 TITLE: A monoclonal antibody (ST-1) directed to the native heparin chain.  
 AUTHOR: Straus A H; Travassos L R; Takahashi H K  
 CORPORATE SOURCE: Department of Biochemistry, Escola Paulista de Medicina, Sao Paulo, Brazil.  
 SOURCE: Analytical biochemistry, (1992 Feb 14) Vol. 201, No. 1, pp. 1-8.  
 Journal code: 0370535. ISSN: 0003-2697.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 (RESEARCH SUPPORT, NON-U.S. GOV'T)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 199208  
 ENTRY DATE: Entered STN: 15 Aug 1992  
 Last Updated on STN: 29 Jan 1996  
 Entered Medline: 4 Aug 1992

AB A mouse monoclonal antibody, ST-1, was raised against heparin complexed to Salmonella minnesota. Characterization of this antibody showed that it recognizes an epitope in the intact molecule of heparin that is present regardless of its source or anticoagulant activity. ST-1 is the first monoclonal antibody specific for the intact unmodified molecule of heparin



to be described. <sup>3</sup>H-labeled heparin in solution was immunoprecipitated by ST-1, and the formation of the <sup>3</sup>H-labeled immunocomplex was selectively inhibited by unlabeled heparin. No cross-reactivity of ST-1 was observed with other glycosaminoglycans such as heparan sulfate, chondroitin sulfate, hyaluronic acid, dermatan sulfate, and keratan sulfate, or with polyanionic polymers such as dextran sulfate. Selective removal of the N-sulfate groups or N,O-desulfation of heparin strongly reduced the binding of ST-1. Inhibition of binding was also observed after carbodiimide reduction of the carboxyl groups of the uronic acid units of heparin. Competitive assays of ST-1 binding to heparin immobilized on poly-L-lysine-coated plates using oligosaccharides of different sizes that arose from HNO<sub>2</sub> cleavage of heparin showed that the minimum fragment required for reactivity of ST-1 is a decasaccharide.

L10 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:844210 CAPLUS  
DOCUMENT NUMBER: 145:438828  
TITLE: Synthetic Studies of Complex Immunostimulants from  
Quillaja saponaria: Synthesis of the Potent Clinical  
Immunoadjuvant QS-21Aapi  
AUTHOR(S): Kim, Yong-Jae; Wang, Pengfei; Navarro-Villalobos,  
Mauricio; Rohde, Bridget D.; Derryberry, JohnMark;  
Gin, David Y.  
CORPORATE SOURCE: Department of Chemistry, University of Illinois,  
Urbana, IL, 61801, USA  
SOURCE: Journal of the American Chemical Society (2006),  
128(36), 11906-11915  
CODEN: JACSAT; ISSN: 0002-7863  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 145:438828

AB QS-21 is one of the most promising new adjuvants for immune response  
potentiation and dose-sparing in vaccine therapy given its exceedingly  
high level of potency and its favorable toxicity profile. Melanoma,  
breast cancer, small cell lung cancer, prostate cancer, HIV-1, and malaria  
are among the numerous maladies targeted in more than 80 recent and  
ongoing vaccine therapy clin. trials involving QS-21 as a critical adjuvant  
component for immune response augmentation. QS-21 is a natural product  
immunostimulatory adjuvant, eliciting both T-cell- and antibody-mediated  
immune responses with microgram doses. Herein is reported the synthesis  
of QS-21Aapi in a highly modular strategy, applying novel glycosylation  
methodologies to a convergent construction of the potent saponin  
immunostimulant. The chemical synthesis of QS-21 offers unique opportunities  
to probe its mode of biol. action through the preparation of otherwise  
unattainable nonnatural saponin analogs.

REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1256390 CAPLUS  
DOCUMENT NUMBER: 144:270549  
TITLE: Biochemical and immunohistochemical analysis of pectic  
polysaccharides in the cell walls of Arabidopsis  
mutant QUASIMODO 1 suspension-cultured cells:  
implications for cell adhesion  
AUTHOR(S): Leboeuf, Edouard; Guillon, Fabienne; Thoirion,  
Severine; Lahaye, Marc  
CORPORATE SOURCE: Interactions, Assemblages, INRA-Biopolymeres, Nantes,  
F-44316, Fr.  
SOURCE: Journal of Experimental Botany (2005), 56(422),  
3171-3182  
CODEN: JEBOA6; ISSN: 0022-0957  
PUBLISHER: Oxford University Press  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Mutation in the Arabidopsis thaliana QUASIMODO 1 gene (QUA1), which  
encodes a putative glycosyltransferase, reduces cell wall pectin content  
and cell adhesion. Suspension-cultured calli were generated from roots of  
wild-type (wt) and qual-1 A. thaliana plants. The altered cell adhesion  
phenotype of the qual-1 plant was also found with its suspension-cultured  
calli. Cell walls of both wt and qual-1 calli were analyzed by chemical,  
enzymic and immunohistochem. techniques in order to assess the  
role of pectic polysaccharides in the mutant phenotype. Compared with the  
wt, qual-1 calli cell walls contained more arabinose (23.6 vs. 21.6 mol%),  
rhamnose (3.1 vs. 2.7 mol%), and fucose (1.4 vs. 1.2 mol%) and less  
uronic acid (24.2 vs. 27.6 mol%), and they were less

in methyl-esterified (DM: 22.9% vs. 30.3%). When sequential pectin extraction of calli cell walls was performed, qual-1 water-soluble and chelator-soluble exts. contained more arabinose and less uronic acid than weight Water-soluble pectins were less methyl-esterified in qual-1 than in weight Chelator-soluble pectins were more acetyl-esterified in qual-1. Differences in the cell wall chemical of wt and mutant calli were supported by a reduction

JIM7 labeling (methyl-esterified homogalacturonan) of the whole wall in small cells and particularly by a reduced labeling with 2F4 (calcium-associated homogalacturonan) in the middle lamella at tricellular junctions of large qual-1 cells. Differences in the oligosaccharide profile obtained after endopolygalacturonase degradation of alkali exts. from qual-1 and wt calli indicated variations in the structure of covalently bonded homogalacturonan. About 29% more extracellular polymers rich in pectins were recovered from the calli culture medium of qual-1 compared with weight. These results show that perturbation of QUASIMODO 1-1 gene expression in calli resulted in alterations of homogalacturonan content and cell wall location. The consequences of these structural variations are discussed with regard to plant cell adhesion.

REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:822052 CAPLUS

DOCUMENT NUMBER: 139:22430

TITLE: A novel strategy for the synthesis of neoglycoconjugates from deacylated deep rough lipopolysaccharides

AUTHOR(S): Mueller-Loennies, Sven; Grimmecke, Dieter; Brade, Lore; Lindner, Buko; Kosma, Paul; Brade, Helmut

CORPORATE SOURCE: Divisions of Biochemical and Medical Microbiology, Research Center Borstel, Borstel, Germany

SOURCE: Journal of Endotoxin Research (2002), 8(4), 295-305  
CODEN: JENREB; ISSN: 0968-0519

PUBLISHER: Maney Publishing

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 139:22430

AB We report a novel strategy for the preparation of neoglycoconjugates of oligosaccharides which are obtained after complete deacylation of bacterial deep rough lipopolysaccharides (LPS) isolated from recombinant Escherichia coli bacteria synthesizing a Kdo di- $[\alpha\text{-Kdo-(2\rightarrow4)-}\alpha\text{-Kdo-(2\rightarrow)}]$  and a Kdo trisaccharide  $[\alpha\text{-Kdo-(2\rightarrow8)-}\alpha\text{-Kdo-(2\rightarrow4)-}\alpha\text{-Kdo-(2\rightarrow)}]$  of Re-type and chlamydial LPS, resp. Unlike acylated LPS, such oligosaccharides can be obtained in pure form and thus lead to well-defined neoglycoconjugates. Cleavage of the 1-phosphate of the lipid A moiety by alkaline phosphatase treatment leads to a free reducing glucosamine which can be further reacted with allylamine. After reductive amination, spacer elongation of the allyl group with cysteamine and activation with thiophosgene, the ligands were reacted with BSA. We have compared the immunol. reactivity of such defined neoglycoconjugates obtained from natural sources with those obtained by chemical synthesis and report that such neoglycoconjugates are immunogenic and well suited as antigens for the study of epitope specificities of monoclonal antibodies. In addition, we have compared these conjugates with those in which ligands were coupled by glutardialdehyde to BSA. Our approach proved to be superior since the latter led upon immunization of mice to a relatively high percentage of antibodies that reacted with glutardialdehyde derivatized BSA without the carbohydrate ligand.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:449938 CAPLUS  
DOCUMENT NUMBER: 133:317031  
TITLE: Immune stimulating properties of di-equatorially  
 $\beta(1\rightarrow4)$  linked polyuronides  
AUTHOR(S): Skjak-Braek, G.; Flo, T.; Halaas, O.; Espevik, T.  
CORPORATE SOURCE: Institute of Biotechnology and Institute of Cancer  
Research and Molecular, Norwegian University of  
Science and Technology, Trondheim, N-7005, Norway  
SOURCE: Proceedings of the Phytochemical Society of Europe  
(2000), 44(Bioactive Carbohydrate Polymers), 85-93  
CODEN: APPEDR; ISSN: 0309-9393  
PUBLISHER: Kluwer Academic Publishers  
DOCUMENT TYPE: Journal; General Review  
LANGUAGE: English

AB A review with 15 refs. The biol. activities of complex carbohydrates and polysaccharides have traditionally been attributed to short oligosaccharide structures. In the last decade several reports have been published suggesting that biol. activity, i.e. antitumor activity as well as the adjuvant effect of polysaccharides of various structures and origins is depending upon certain macromol. structures. The best known example is the  $\beta$ -1-3-linked glucan. We have previously found that certain alginates induce human monocytes to produce TNF, IL-1 and IL-6, and that the cytokine inducing ability depends on the mannuronic acid (M) content as well as the mol. weight of the alginate. Our data demonstrate that alginates enriched in mannuronic acid were the cytokine inducing polysaccharides whereas guluronic acid residues did not stimulate monocytes to produce cytokines. Similar effects are found for other polyuronides containing  $\beta$ -1-4 di-equatorial linked sequences. High M-alginate and lipopolysaccharide (LPS) were found to stimulate human monocytes by similar mechanism, which involved the CD14 LPS/LBP receptor. The mechanism for the interaction between the polyuronides and the cytokine producing cells will be discussed. Defined polysaccharides, which specifically stimulate the non-specific immune system, may be important agents for treatment of various infectious diseases. The potent cytokine inducing ability of  $\beta$ 1-4 linked uronic acid polymers on monocytes in vitro implicates possible interesting effects in vivo. The effect of high M alginate and C-6 oxidized cellulose in various in vivo models, ranging from bacterial sepsis in rodents to adjuvant effects in marine fishes have been tested.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:846739 CAPLUS  
DOCUMENT NUMBER: 123:225931  
TITLE: Immunomodulation using NKR-P1, CD69 and ligands therefor  
INVENTOR(S): Feizi, Ten; Bezouska, Karel  
PATENT ASSIGNEE(S): Medical Research Council, UK  
SOURCE: PCT Int. Appl., 165 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9521618	A1	19950817	WO 1995-GB321	19950215
W:	AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, UG			



RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT,  
LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE,  
SN, TD, TG

AU 9516691	A	19950829	AU 1995-16691	19950215
CZ 296202	B6	20060215	CZ 1996-2387	19950215

PRIORITY APPLN. INFO.:

GB 1994-2890	A	19940215
GB 1994-12952	A	19940628
GB 1994-22584	A	19941109
WO 1995-GB321	W	19950215

AB Monosaccharide and oligosaccharide ligands for NKR-P1 and CD69, expressed on the surface of effector cells of the immune system, including Natural Killer (NK) cells, are identified and demonstrated to be useful in enhancing and inhibiting effector function, including cytotoxicity. Effector function is enhanced when ligands are clustered, e.g. on liposomes or engineered amino acid sequences, and inhibited when the ligands are in monomeric or free form. Ligands and/or effector cells may be targeted to target cells using members of specific binding pairs, such as antibodies. Soluble forms of NKR-P1 and CD69 may also be used. The oligosaccharide comprises glycosaminoglycan, sulfide, sulfated ganglioside other than sulfatide, 6-sialyl hexose, 3-O-sulfated uronic acid, keratan sulfate, chondroitin sulfate, heparin sulfate, disaccharide, tetrasaccharide, etc.

L11 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:193732 CAPLUS  
DOCUMENT NUMBER: 146:236150  
TITLE: Oral formulations containing acidic  
xylooligosaccharides and Lyophyllum decastes extracts  
for treatment of dermatitis and their use for  
functional feed for pet animals and for functional  
food  
INVENTOR(S): Ikemizu, Shoichi; Ishikawa, Kotaro; Ikemizu, Tomohiro  
PATENT ASSIGNEE(S): Oji Paper Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 12pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007045812	A	20070222	JP 2006-86738	20060327

PRIORITY APPLN. INFO.: JP 2005-202404 A 20050712

AB The oral formulations contain acidic xylooligosaccharides having uronic acid residues and Lyophyllum decastes exts. Pulp slurry prepared by removal of lignin from wood chips was treated with xylanase from Bacillus sp. S-2113 strain to give an enzymic hydrolyzate, from which acidic xylooligosaccharides (average d.p. 10.3) having 1 uronic acid residue per mol. were purified. Feed containing a powder mixture containing 250 mg of the acidic xylooligosaccharide powder and 160 mg Lyophyllum decastes extract powder was effective for treatment of atopic dermatitis in dogs by feeding for 2-4 wk. An aqueous solution containing 60% of the powder mixture showed no acute toxicity in mice by p.o. administration at 5 g/kg/day for 4 wk.

L11 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:112650 CAPLUS  
DOCUMENT NUMBER: 146:156234  
TITLE: Oral xylooligosaccharide preparations for treatment of allergic rhinitis  
INVENTOR(S): Takahashi, Tetsunari; Oi, Toru  
PATENT ASSIGNEE(S): Oji Paper Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 9pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007023018	A	20070201	JP 2006-6915	20060116

PRIORITY APPLN. INFO.: JP 2005-177901 A 20050617

AB Title prepns., useful for treatment of hay fever, contain uronic acid residue-containing acidic xylooligosaccharides manufactured by enzymic and/or physicochem. treatment of lignocellulose materials, followed by acidic hydrolysis of the obtained xylooligosaccharide-lignin complexes. Thus, oral administration of aqueous solution of acidic xylooligosaccharides with d.p. 2.3, 4, 8, and 10.3 (enzymically manufactured from wood chips) significantly reduced the number of sneezing in TDI-sensitized guinea pigs. The solution showed no lethal toxicity.

L11 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:362069 CAPLUS  
 DOCUMENT NUMBER: 142:404246  
 TITLE: Antiallergy agents containing acidic xylo-oligosaccharides for alleviation of allergic rhinitis  
 INVENTOR(S): Takahashi, Tetsunari; Ikemizu, Shoichi  
 PATENT ASSIGNEE(S): Oji Paper Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005112826	A	20050428	JP 2003-352739	20031010
PRIORITY APPLN. INFO.:			JP 2003-352739	20031010

AB Title agents, useful for nasal drops, tissue paper, face masks, and swabs, contain acidic xylo-oligosaccharides having uronic acid residues as active ingredients. Thus, nasal drops containing acidic xylo-oligosaccharide (average d.p. 10.3, having 1 uronic acid residue per oligosaccharide, prepared from wood chips) improved the symptoms of allergic rhinitis in patients. The oligosaccharide caused no skin irritation in mice.

L11 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1977:565850 CAPLUS  
 DOCUMENT NUMBER: 87:165850  
 TITLE: A common reactivity of sea-squirt antigens and their acidic glycopeptide fragments to various rabbit anti-sea-squirt serums  
 AUTHOR(S): Oka, Satoru; Tsuji, Moriyasu; Jyo, Toshihiko  
 CORPORATE SOURCE: Sch. Med., Univ. Hiroshima, Hiroshima, Japan  
 SOURCE: Arerugi (1977), 26(6), 469-74  
 CODEN: ARERAM; ISSN: 0021-4884  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The sea-squirt antigens (G-2, and E-2) (Oka, S., et al., 1977) were purified by gel chromatog. and anion-exchange chromatog., successively to Gi-2 and Ei-2, resp., which were digested by pronase E to yield antigenically active acidic glycopeptide fragments (Gp and Ep), resp. Removal of some sugar components from Gp and Ep fragments by treating with alkaline NaBH4 produced antigenically active glycopeptide fragments (Gp-A and Ep-A), resp. The antigenic activity estimated by skin test of asthmatic patients with sea-squirt allergy was Gi-2 >> Ei-2 ≥ Gp >> Ep > Gp-A >> Ep-A. The immunoreactivity of those 6 antigen prepns. with anti-Ei2 rabbit serum, and the anti-sea squirt rabbit serum titers during immunization with those 6 antigens approx. paralleled the antigenic activities estimated in the asthmatic patients. The common antigenic moiety was determined as a sulfated oligosaccharide attached N-glycosidically to the asparaginyl residue of the polypeptide chain. The acidic oligosaccharide moiety consisted of 3-4 mol. of glucosamine, 2-3 mol. of galactosamine, 1-3 mol. of uronic acid, 3-6 mol. of sulfate and 1 mol. of asparagine.

L13 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:364746 CAPLUS

DOCUMENT NUMBER: 143:404943

TITLE: Lactic acid fermentation eliminates indigestible carbohydrates and antinutritional factors in soybean meal for Atlantic salmon (*Salmo salar*)

AUTHOR(S): Refstie, Stale; Sahlstroem, Stefan; Brathen, Erland; Baeverfjord, Grete; Krogedal, Per

CORPORATE SOURCE: AKVAFORSK (Institute of Aquaculture Research AS), Sunndalsora, N-6600, Norway

SOURCE: Aquaculture (2005), 246(1-4), 331-345  
CODEN: AQCLAL; ISSN: 0044-8486

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB This study investigated how lactic acid fermentation of extracted (de-oiled) soybean

white flakes (WF) affected the nutritional value of the WF when fed to Atlantic salmon. WF and fermented WF (FWF) were compared with a com. extracted (SBM) and a com. biotechnol. processed (BPSBM) soybean meal. Lactic acid fermentation eliminated sucrose, reduced the level of raffinose, and lowered trypsin inhibitor activity in the FWF. Eight extruded diets were produced in which the soy products substituted LT-fish meal (FM) on a crude protein (CP) basis: No soy (LT-FM); 20% SBM; 20% WF; 20% FWF; 20% BPSBM; 40% WF; 40% FWF; and 40% BPSBM. Each diet was fed to triplicate groups of 188 g salmon maintained in 8.4 °C seawater for 68 days. The groups fed 40% FWF consumed slightly less feed than the other groups. The groups fed LT-FM and 20% BPSBM grew fastest, while those fed 40% WF and 40% FWF grew slowest and at similar rates. All soy products reduced the digestibility of lipid, but this effect was less severe when feeding the diets with FWF and BPSBM. Soybean meal-induced pathol. changes in the intestine were less pronounced in fish fed FWF and BPSBM than in fish fed WF and SBM. The similar growth in the groups fed 40% WF and 40% FWF was attributed to higher digestibility of lipid and energy when feeding FWF. The intestinal microflora of the salmon appeared to utilize soy oligosaccharides, and also some pectin and mannan. To conclude, lactic acid fermentation improved the nutritional value of WF by partly eliminating feed allergen(s) and soy factor(s) that restrict the absorption of lipid by Atlantic salmon.

REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT



L14 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:40604 CAPLUS

DOCUMENT NUMBER: 146:92990

TITLE: Oral administration of alginic acid oligosaccharide suppresses IgE production and inhibits the induction of oral tolerance

AUTHOR(S): Uno, Tsukasa; Hattori, Makoto; Yoshida, Tadashi

CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology, 3-5-8 Saiwai-cho, Fuchu, Tokyo, 183-8509, Japan

SOURCE: Bioscience, Biotechnology, and Biochemistry (2006), 70(12), 3054-3057

CODEN: BBBIEJ; ISSN: 0916-8451

PUBLISHER: Japan Society for Bioscience, Biotechnology, and Agrochemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We have found that alginic acid oligosaccharide (ALGO) enhanced Th1 by promoting IL-12 production, suggesting that ALGO can be applied as an anti-allergic food. In this study we examined both pos. and neg. functions of ALGO. First we investigated the anti-allergic activity of ALGO, as a pos. function, when orally administered. IgE production was significantly inhibited in mice fed ALGO as compared to control mice. This result indicates that ALGO had anti-allergic activity even when orally administered. On the other hand, we also found a neg. function of ALGO. Oral co-administration of a protein antigen and ALGO inhibited the induction of oral tolerance to the protein. These data indicate the potential of ALGO as an anti-allergic food material and the necessity of further examination to determine a safe method application.

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:684857 CAPLUS

DOCUMENT NUMBER: 143:210336

TITLE: Reduced T Cell Response to  $\beta$ -Lactoglobulin by Conjugation with Acidic Oligosaccharides

AUTHOR(S): Yoshida, Tadashi; Sasahara, Yoshimasa; Miyakawa, Shunpei; Hattori, Makoto

CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology, Tokyo, Japan

SOURCE: Journal of Agricultural and Food Chemistry (2005), 53(17), 6851-6857

CODEN: JAFCAU; ISSN: 0021-8561

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We have previously reported that the conjugation of  $\beta$ -lactoglobulin ( $\beta$ -LG) with alginic acid oligosaccharide (ALGO) and phosphoryl oligosaccharides reduced the immunogenicity of  $\beta$ -LG. In addition, those conjugates showed higher thermal stability and improved emulsifying properties than those of native  $\beta$ -LG. We examine in this study the effect of conjugation on the T cell response. Our results demonstrate that the T cell response was reduced when mice were immunized with the conjugates. The findings obtained from an experiment using overlapping synthetic peptides show that novel epitopes were not generated by conjugation. One of the mechanisms for the reduced T cell response to the conjugates was found to be the reduced susceptibility of the conjugates to processing enzymes for antigen presentation. We further clarify that the  $\beta$ -LG-ALGO conjugate modulated the immune response to Th1 dominance. We consider that this property of the  $\beta$ -LG-ALGO conjugate would be effective for preventing food allergy as well

as by its reduced immunogenicity. Our observations indicate that the method used in this study could be applied to various protein allergens to achieve reduced allergenicity with multiple improvements in their properties.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:962502 CAPLUS

DOCUMENT NUMBER: 142:196393

TITLE: Reduced immunogenicity of  $\beta$ -lactoglobulin conjugation with alginic oligosaccharide

AUTHOR(S): Hattori, Makoto; Miyakawa, Shunpei; Ohama, Yukie; Kawamura, Hiroyuki; Yoshida, Tadashi; Takahashi, Koji

CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology, Fuchu, Tokyo, 183-8509, Japan

SOURCE: Animal Cell Technology: Basic & Applied Aspects, Proceedings of the Annual Meeting of the Japanese Association for Animal Cell Technology, 15th, Fuchu, Japan, Nov. 11-15, 2002 (2003), Meeting Date 2002, 273-276. Editor(s): Yagasaki, Kazumi. Kluwer Academic Publishers: Dordrecht, Neth. CODEN: 69GBKC; ISBN: 1-4020-1970-X

DOCUMENT TYPE: Conference

LANGUAGE: English

AB The structure and the possibility of reducing the immunogenicity of  $\beta$ -lactoglobulin ( $\beta$ -LG)-alginic oligosaccharide (ALGO) conjugate, prepared by the Maillard reaction, were investigated. Results demonstrate reduced immunogenicity of  $\beta$ -LG by its conjugated ALGO without inducing novel immunogenicity. This conjugation method can bring about improvements in the emulsifying ability and aggregation characteristics of  $\beta$ -LG. This method is valuable in that the obtained conjugate is edible with multiple improved functions such as improved functional properties and reduced immunogenicity.

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:286191 CAPLUS

DOCUMENT NUMBER: 141:360351

TITLE: Alginic Acid Oligosaccharide Suppresses Th2 Development and IgE Production by Inducing IL-12 Production

AUTHOR(S): Yoshida, Tadashi; Hirano, Aki; Wada, Hanae; Takahashi, Koji; Hattori, Makoto

CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology, Tokyo, Japan

SOURCE: International Archives of Allergy and Immunology (2004), 133(3), 239-247. CODEN: IAAIEG; ISSN: 1018-2438

PUBLISHER: S. Karger AG

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Background: Since allergen-specific IgE is directly involved in the type I allergic reaction, development of a method for inhibiting Th2 responses which lead to the induction of IgE production would be a useful approach for preventing allergic disorders. The ability and mechanism of alginic acid oligosaccharide (ALGO), an oligosaccharide obtained from natural edible polysaccharide, for suppressing Th2 responses was examined in detail. Methods: Lymph node cells obtained from  $\beta$ -lactoglobulin ( $\beta$ -LG)-primed BALB/c mice were cultured in vitro with an antigen for 3 days in the absence or presence of ALGO. The amount of cytokine in each

culture supernatant was measured. The effect of ALGO on Th2 development was also examined by using ovalbumin specific T cell receptor transgenic mice. Antibody production in the serum of BALB/c mice that had been immunized with  $\beta$ -LG or  $\beta$ -LG plus ALGO was investigated. Results: The production of IFN- $\gamma$  induced by antigen stimulation was upregulated by ALGO in a dose-dependent manner. IL-12 production was also enhanced by ALGO, and the addition of the anti-IL-12 antibody to the culture abrogated the effect of ALGO. IL-4 production by antigen-stimulated splenocytes of transgenic mice was suppressed in the presence of ALGO. Furthermore, IgE production by ALGO-treated mice was significantly inhibited compared with control mice. Conclusions: These results indicate that ALGO suppressed antigen-induced Th2 development by inducing IL-12 production. ALGO also inhibited in vivo IgE production. These findings suggest that ALGO is expected to be an edible anti-allergic agent.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 5 OF 7 MEDLINE on STN  
 ACCESSION NUMBER: 2006748985 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 17151448  
 TITLE: Oral administration of alginic acid oligosaccharide suppresses IgE production and inhibits the induction of oral tolerance.  
 AUTHOR: Uno Tsukasa; Hattori Makoto; Yoshida Tadashi  
 CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology.  
 SOURCE: Bioscience, biotechnology, and biochemistry, (2006 Dec) Vol. 70, No. 12, pp. 3054-7. Electronic Publication: 2006-12-07.  
 Journal code: 9205717. ISSN: 0916-8451.  
 PUB. COUNTRY: Japan  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE) (RESEARCH SUPPORT, NON-U.S. GOV'T)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200703  
 ENTRY DATE: Entered STN: 27 Dec 2006  
 Last Updated on STN: 6 Mar 2007  
 Entered Medline: 5 Mar 2007

AB We have found that alginic acid oligosaccharide (ALGO) enhanced Th1 by promoting IL-12 production, suggesting that ALGO can be applied as an anti-allergic food. In this study we examined both positive and negative functions of ALGO. First we investigated the anti-allergic activity of ALGO, as a positive function, when orally administered. IgE production was significantly inhibited in mice fed ALGO as compared to control mice. This result indicates that ALGO had anti-allergic activity even when orally administered. On the other hand, we also found a negative function of ALGO. Oral co-administration of a protein antigen and ALGO inhibited the induction of oral tolerance to the protein. These data indicate the potential of ALGO as an anti-allergic food material and the necessity of further examination to determine a safe method application.

L14 ANSWER 6 OF 7 MEDLINE on STN  
 ACCESSION NUMBER: 2005438772 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 16104810  
 TITLE: Reduced T cell response to beta-lactoglobulin by conjugation with acidic oligosaccharides.  
 AUTHOR: Yoshida Tadashi; Sasahara Yoshimasa; Miyakawa Shunpei; Hattori Makoto  
 CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology, Tokyo, Japan.  
 SOURCE: Journal of agricultural and food chemistry, (2005 Aug 24) Vol. 53, No. 17, pp. 6851-7.

Journal code: 0374755. ISSN: 0021-8561.  
PUB. COUNTRY: United States  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
(RESEARCH SUPPORT, NON-U.S. GOV'T)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 200509  
ENTRY DATE: Entered STN: 18 Aug 2005  
Last Updated on STN: 30 Sep 2005  
Entered Medline: 29 Sep 2005

AB We have previously reported that the conjugation of beta-lactoglobulin (beta-LG) with alginic acid oligosaccharide (ALGO) and phosphoryl oligosaccharides reduced the immunogenicity of beta-LG. In addition, those conjugates showed higher thermal stability and improved emulsifying properties than those of native beta-LG. We examine in this study the effect of conjugation on the T cell response. Our results demonstrate that the T cell response was reduced when mice were immunized with the conjugates. The findings obtained from an experiment using overlapping synthetic peptides show that novel epitopes were not generated by conjugation. One of the mechanisms for the reduced T cell response to the conjugates was found to be the reduced susceptibility of the conjugates to processing enzymes for antigen presentation. We further clarify that the beta-LG-ALGO conjugate modulated the immune response to Th1 dominance. We consider that this property of the beta-LG-ALGO conjugate would be effective for preventing food allergy as well as by its reduced immunogenicity. Our observations indicate that the method used in this study could be applied to various protein allergens to achieve reduced allergenicity with multiple improvements in their properties.

L14 ANSWER 7 OF 7 MEDLINE on STN  
ACCESSION NUMBER: 2004157532 MEDLINE  
DOCUMENT NUMBER: PubMed ID: 14976392  
TITLE: Alginic acid oligosaccharide suppresses Th2 development and IgE production by inducing IL-12 production.  
AUTHOR: Yoshida Tadashi; Hirano Aki; Wada Hanae; Takahashi Koji; Hattori Makoto  
CORPORATE SOURCE: Department of Applied Biological Science, Tokyo University of Agriculture and Technology, Tokyo, Japan.: tyoshi@cc.tuat.ac.jp  
SOURCE: International archives of allergy and immunology, (2004 Mar) Vol. 133, No. 3, pp. 239-47. Electronic Publication: 2004-02-16.  
Journal code: 9211652. ISSN: 1018-2438.  
PUB. COUNTRY: Switzerland  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
(RESEARCH SUPPORT, NON-U.S. GOV'T)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 200404  
ENTRY DATE: Entered STN: 31 Mar 2004  
Last Updated on STN: 28 Apr 2004  
Entered Medline: 27 Apr 2004

AB BACKGROUND: Since allergen-specific IgE is directly involved in the type I allergic reaction, development of a method for inhibiting Th2 responses which lead to the induction of IgE production would be a useful approach for preventing allergic disorders. The ability and mechanism of alginic acid oligosaccharide (ALGO), an oligosaccharide obtained from natural edible polysaccharide, for suppressing Th2 responses was examined in detail. METHODS: Lymph node cells obtained from beta-lactoglobulin (beta-LG)-primed BALB/c mice were cultured in vitro with an antigen for 3 days in the absence or presence of ALGO. The amount of cytokine in each culture supernatant was measured. The effect of ALGO on Th2 development



was also examined by using ovalbumin specific T cell receptor transgenic mice. Antibody production in the serum of BALB/c mice that had been immunized with beta-LG or beta-LG plus ALGO was investigated. RESULTS: The production of IFN-gamma induced by antigen stimulation was upregulated by ALGO in a dose-dependent manner. IL-12 production was also enhanced by ALGO, and the addition of the anti-IL-12 antibody to the culture abrogated the effect of ALGO. On the other hand, IL-4 production by antigen-stimulated splenocytes of transgenic mice was suppressed in the presence of ALGO. Furthermore, IgE production by ALGO-treated mice was significantly inhibited compared with control mice. CONCLUSIONS: These results indicate that ALGO suppressed antigen-induced Th2 development by inducing IL-12 production. ALGO also inhibited in vivo IgE production. These findings suggest that ALGO is expected to be an edible anti-allergic agent.

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L18 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:1006787 CAPLUS

DOCUMENT NUMBER: 140:47532

TITLE: Quaternary ammonium cyclodextrins as pharmaceutical penetration enhancers

INVENTOR(S): Kis, Georg Ludwig; Schoch, Christian; Szejtli, Jozsef

PATENT ASSIGNEE(S): Novartis A.-G., Switz.; Novartis Pharma G.m.b.H.

SOURCE: PCT Int. Appl., 35 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003105867	A1	20031224	WO 2003-EP6192	20030612
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LT, LU, LV, MA, MD, MK, MN, MX, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SE, SG, SK, TJ, TM, TN, TR, TT, UA, US, UZ, VC, VN, YU, ZA, ZW				
RW: AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
CA 2487332	A1	20031224	CA 2003-2487332	20030612
AU 2003276957	A1	20031231	AU 2003-276957	20030612
BR 2003011722	A	20050301	BR 2003-11722	20030612
EP 1515729	A1	20050323	EP 2003-740232	20030612
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1658888	A	20050824	CN 2003-813614	20030612
JP 2005529175	T	20050929	JP 2004-512769	20030612
US 2005222085	A1	20051006	US 2004-516247	20041130
PRIORITY APPLN. INFO.:			EP 2002-13074	A 20020613
			EP 2002-28554	A 20021220
			WO 2003-EP6192	W 20030612

OTHER SOURCE(S): MARPAT 140:47532

AB The use of quaternized ammonium cyclodextrin compds. in the preparation of an anti-infective pharmaceutical as preservative and penetration enhancer is disclosed. Thus, a thin-layer film composition contained Mowiol 26-88 100, HPC 40, quaternary ammonium  $\beta$ -cyclodextrin derivative 50, and glycerin 10 mg.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:459866 CAPLUS

DOCUMENT NUMBER: 135:66223

TITLE: Injections containing branched cyclodextrin derivatives for solubilization of difficultly soluble drugs

INVENTOR(S): Ishiguro, Toshihiro

PATENT ASSIGNEE(S): Takeda Chemical Industries, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001172202	A	20010626	JP 1999-358009	19991216

PRIORITY APPLN. INFO.:

JP 1999-358009

19991216

AB This invention relates to injections comprising water-insol. or difficultly soluble drugs and branched cyclodextrin carboxyates. The pyrogen content in the injection solution is adjusted to  $\leq 100$  EU/g by ultrafiltration using a hollow fiber membrane. An aqueous solution containing endotoxin-free 6-O-cyclomaltoheptaosyl-(6 $\rightarrow$ 1)- $\alpha$ -D-glucosyl-(4 $\rightarrow$ 1)-O- $\alpha$ -D- glucuronic acid sodium salt and lansoprazole was prepared and the solution was freeze-dried to give a colorless powder, which showed a value of 27.8 EU/g.

L19 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:1254893 CAPLUS

DOCUMENT NUMBER: 146:81082

TITLE: Effects of probiotic supplementation for the first 6 months of life on allergen- and vaccine-specific immune responses

AUTHOR(S): Taylor, A. L.; Hale, J.; Wiltshut, J.; Lehmann, H.; Dunstan, J. A.; Prescott, S. L.

CORPORATE SOURCE: School of Paediatrics and Child Health Research, University of Western Australia, Perth, WA, Australia

SOURCE: Clinical and Experimental Allergy (2006), 36(10), 1227-1235

CODEN: CLEAEN; ISSN: 0954-7894

PUBLISHER: Blackwell Publishing Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Background: A reduction in microbial burden during infancy when allergen-specific memory is evolving has become a prominent explanation for the allergy epidemic. Objective: We sought to determine whether probiotic dietary supplementation in the first 6 mo of life could modify allergen- and vaccine-specific immune responses. Methods: Two hundred and thirty-one pregnant women with a history of allergic disease and pos. allergen skin prick test (SPT) were recruited into a randomized-controlled trial. The infants received either a probiotic (3 + 109 Lactobacillus acidophilus LAVRI-A1; Probiomix) or placebo (maltodextrin alone) daily for the first 6 mo of life, given independent of feeding methods. One hundred and seventy-eight children completed the study; blood samples were available from 60 children in the placebo group and 58 children in the probiotic group. Infant cytokine (IL-5, IL-6, IL-10, IL-13, TNF- $\alpha$  or TGF- $\beta$ ) responses to tetanus toxoid (TT), house dust mite (HDM), ovalbumin (OVA),  $\beta$ -lactoglobulin (BLG), Staphylococcus enterotoxin B (SEB) and phytohemagglutinin (PHA) were measured at 6 mo of age. Results: Children who received the probiotics showed reduced production of IL-5 and TGF- $\beta$  in response to polyclonal (SEB) stimulation (P = 0.044 and 0.015, resp.). They also demonstrated significantly lower IL-10 responses to TT vaccine antigen compared with the placebo group (P = 0.03), and this was not due to any differences in vaccination. However, there were no significant effects of probiotics on either Type 1 (Th1) or Type 2 (Th2) T helper cell responses to allergens or other stimuli. The only other effects observed were for reduced TNF- $\alpha$  and IL-10 responsiveness to HDM allergens in children receiving probiotics (P = 0.046 and 0.014, resp.). Conclusions: In summary, although we did not see any consistent effects on allergen-specific responses, our study suggests that probiotics may have immunomodulatory effects on vaccine responses. The significance and clin. relevance of this need to be determined in further studies.

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:735087 CAPLUS

DOCUMENT NUMBER: 143:210446

TITLE: Heat-killed and  $\gamma$ -irradiated bacteria conjugated with multimeric TLR7-9 ligands and tumor antigen or allergen as mucosal vaccines against infection, cancer and/or allergy

INVENTOR(S): Raz, Eyal; Fierer, Joshua

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 51 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent



LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005175630	A1	20050811	US 2004-21821	20041222
PRIORITY APPLN. INFO.:			US 2003-532786P	P 20031223
			US 2004-564913P	P 20040422

AB The present invention provides an immunogenic composition comprising lethally irradiated bacteria formulated for mucosal delivery. The present invention further provides methods of preparing a subject immunogenic composition

The present invention further provides a method of inducing an immune response in an individual to an antigen, the method generally involving administering a subject immunogenic composition to a mucosal tissue of the individual.

L19 ANSWER 3 OF 3 MEDLINE on STN  
ACCESSION NUMBER: 2006584660 IN-PROCESS  
DOCUMENT NUMBER: PubMed ID: 17014429  
TITLE: Effects of probiotic supplementation for the first 6 months of life on allergen- and vaccine-specific immune responses.  
AUTHOR: Taylor A L; Hale J; Wiltschut J; Lehmann H; Dunstan J A; Prescott S L  
CORPORATE SOURCE: School of Paediatrics and Child Health Research, University of Western Australia, Perth, WA, Australia.  
SOURCE: Clinical and experimental allergy : journal of the British Society for Allergy and Clinical Immunology, (2006 Oct) Vol. 36, No. 10, pp. 1227-35.  
Journal code: 8906443. ISSN: 0954-7894.  
PUB. COUNTRY: England: United Kingdom  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
(RESEARCH SUPPORT, NON-U.S. GOV'T)  
LANGUAGE: English  
FILE SEGMENT: NONMEDLINE; IN-PROCESS; NONINDEXED; Priority Journals  
ENTRY DATE: Entered STN: 4 Oct 2006  
Last Updated on STN: 12 Dec 2006

AB BACKGROUND: A reduction in microbial burden during infancy when allergen-specific memory is evolving has become a prominent explanation for the allergy epidemic. OBJECTIVE: We sought to determine whether probiotic dietary supplementation in the first 6 months of life could modify allergen- and vaccine-specific immune responses. METHODS: Two hundred and thirty-one pregnant women with a history of allergic disease and positive allergen skin prick test (SPT) were recruited into a randomized-controlled trial. The infants received either a probiotic (3 x 10<sup>9</sup> Lactobacillus acidophilus LAVRI-A1; Probiomix) or placebo (maltodextrin alone) daily for the first 6 months of life, given independent of feeding methods. One hundred and seventy-eight children completed the study; blood samples were available from 60 children in the placebo group and 58 children in the probiotic group. Infant cytokine (IL-5, IL-6, IL-10, IL-13, TNF-alpha or TGF-beta) responses to tetanus toxoid (TT), house dust mite (HDM), ovalbumin (OVA), beta-lactoglobulin (BLG), Staphylococcus enterotoxin B (SEB) and phytohaemagglutinin (PHA) were measured at 6 months of age. RESULTS: Children who received the probiotics showed reduced production of IL-5 and TGF-beta in response to polyclonal (SEB) stimulation (P=0.044 and 0.015, respectively). They also demonstrated significantly lower IL-10 responses to TT vaccine antigen compared with the placebo group (P=0.03), and this was not due to any differences in vaccination. However, there were no significant effects of probiotics on either Type 1 (Th1) or Type 2 (Th2) T helper cell responses to allergens or other stimuli. The only other effects observed were for reduced TNF-alpha and IL-10 responsiveness to HDM

allergens in children receiving probiotics ( $P=0.046$  and  $0.014$ , respectively). CONCLUSIONS: In summary, although we did not see any consistent effects on allergen-specific responses, our study suggests that probiotics may have immunomodulatory effects on vaccine responses. The significance and clinical relevance of this need to be determined in further studies.

L22 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:193732 CAPLUS  
DOCUMENT NUMBER: 146:236150  
TITLE: Oral formulations containing acidic  
xylooligosaccharides and Lyophyllum decastes extracts  
for treatment of dermatitis and their use for  
functional feed for pet animals and for functional  
food  
INVENTOR(S): Ikemizu, Shoichi; Ishikawa, Kotaro; Ikemizu, Tomohiro  
PATENT ASSIGNEE(S): Oji Paper Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 12pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007045812	A	20070222	JP 2006-86738	20060327

PRIORITY APPLN. INFO.: JP 2005-202404 A 20050712

AB The oral formulations contain acidic xylooligosaccharides having uronic acid residues and Lyophyllum decastes exts. Pulp slurry prepared by removal of lignin from wood chips was treated with xylanase from Bacillus sp. S-2113 strain to give an enzymic hydrolyzate, from which acidic xylooligosaccharides (average d.p. 10.3) having 1 uronic acid residue per mol. were purified. Feed containing a powder mixture containing 250 mg of the acidic xylooligosaccharide powder and 160 mg Lyophyllum decastes extract powder was effective for treatment of atopic dermatitis in dogs by feeding for 2-4 wk. An aqueous solution containing 60% of the powder mixture showed no acute toxicity in mice by p.o. administration at 5 g/kg/day for 4 wk.

L22 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:112650 CAPLUS  
DOCUMENT NUMBER: 146:156234  
TITLE: Oral xylooligosaccharide preparations for treatment of allergic rhinitis  
INVENTOR(S): Takahashi, Tetsunari; Oi, Toru  
PATENT ASSIGNEE(S): Oji Paper Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 9pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007023018	A	20070201	JP 2006-6915	20060116

PRIORITY APPLN. INFO.: JP 2005-177901 A 20050617

AB Title prepns., useful for treatment of hay fever, contain uronic acid residue-containing acidic xylooligosaccharides manufactured by enzymic and/or physicochem. treatment of lignocellulose materials, followed by acidic hydrolysis of the obtained xylooligosaccharide-lignin complexes. Thus, oral administration of aqueous solution of acidic xylooligosaccharides with d.p. 2.3, 4, 8, and 10.3 (enzymically manufactured from wood chips) significantly reduced the number of sneezing in TDI-sensitized guinea pigs. The solution showed no lethal toxicity.

L22 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:362069 CAPLUS  
 DOCUMENT NUMBER: 142:404246  
 TITLE: Antiallergy agents containing acidic  
 xylo-oligosaccharides for alleviation of allergic  
 rhinitis  
 INVENTOR(S): Takahashi, Tetsunari; Ikemizu, Shoichi  
 PATENT ASSIGNEE(S): Oji Paper Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

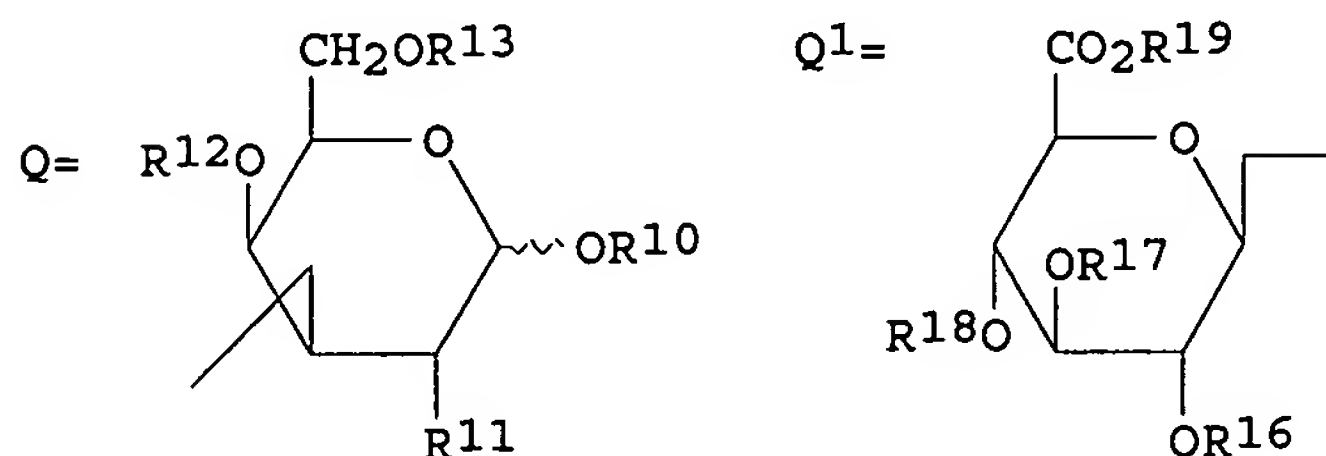
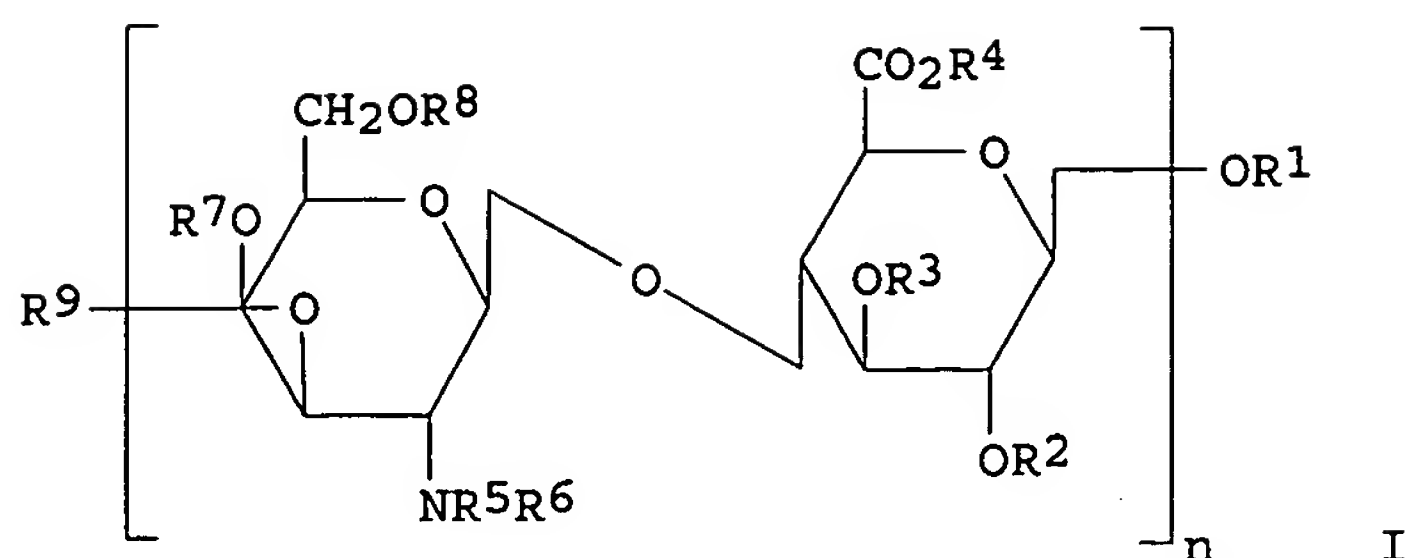
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005112826	A	20050428	JP 2003-352739	20031010
PRIORITY APPLN. INFO.:			JP 2003-352739	20031010
AB Title agents, useful for nasal drops, tissue paper, face masks, and swabs, contain acidic xylo-oligosaccharides having uronic acid residues as active ingredients. Thus, nasal drops containing acidic xylo-oligosaccharide (average d.p. 10.3, having 1 uronic acid residue per oligosaccharide, prepared from wood chips) improved the symptoms of allergic rhinitis in patients. The oligosaccharide caused no skin irritation in mice.				

L22 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:54898 CAPLUS  
 DOCUMENT NUMBER: 120:54898  
 TITLE: Preparation of galactosamine derivatives as  
 antiinflammatory and antiallergic agents  
 INVENTOR(S): Oosawa, Nobuo; Takahashi, Yasuo; Kato, Kazuo;  
 Nishijima, Kazumi  
 PATENT ASSIGNEE(S): Mochida Pharm Co Ltd, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05178876	A	19930720	JP 1991-346911	19911227
PRIORITY APPLN. INFO.:			JP 1991-346911	19911227
OTHER SOURCE(S):			MARPAT 120:54898	
GI				





AB Galactosaminylglucuronic acid derivs. [I; R1 = H, protecting group, Q; R9 = H, protecting group, Q1; R11 = N3, NR14R15; R2 - R8, R10, R12, R14 - R19 = H, protecting group; n = 0-4; provided that when n = 0, R1 = Q and R9 = Q1; when n = 4, R1 and R9 = H, protecting group; the protecting group = linear or branched (un)substituted C1-8 alkyl, C2-8 alkenyl, or C1-8 acyl, (un)substituted aromatic acyl, etc.], also useful as hyaluronidase inhibitors and bronchodilators, are prepared Thus, glycosidation of 3,4,6-tri-O-acetyl-2-deoxy-2-phthalimido- $\alpha$ -D-galactopyranosyl bromide with benzyl 2,3-di-O-benzyl-6-O-(4'-methoxybenzyl)- $\alpha$ -D-glucopyranoside (preparation given) in the presence of Ag triflate, 2,4,6-collidine, and mol. sieve 4A in ClCH<sub>2</sub>CH<sub>2</sub>Cl at -25° to room temperature gave benzyl 2,3-di-O-benzyl-4-O-(3,4,6-tri-O-acetyl-2-deoxy-2-phthalimido- $\beta$ -D-galactopyranosyl)-6-O-(4'-methoxybenzyl)- $\alpha$ -D-glucopyranoside. Deprotection of the latter with NaOMe in MeOH and then with hydrazine hydrate in refluxing methanol followed by acetylation with Ac<sub>2</sub>O in pyridine and removal of 4-methoxybenzyl group with 2,3-dichloro-5,6-dicyano-p-benzoquinone in H<sub>2</sub>O-CH<sub>2</sub>Cl<sub>2</sub> gave benzyl 2,3-di-O-benzyl-4-O-(2-acetamido-3,4,6-tri-O-acetyl-2-deoxy- $\beta$ -D-galactopyranosyl)- $\alpha$ -D-glucopyranoside. Oxidation of the latter with CrO<sub>3</sub> in aqueous H<sub>2</sub>SO<sub>4</sub> and acetone at -5°, esterification of the resulting glucuronic acid derivative with ClCH<sub>2</sub>OME in DMF containing Et<sub>3</sub>N, and hydrogenolysis of the resulting glucuronic acid methoxymethyl ester over 10% Pd-C in MeOH followed by acetylation with Ac<sub>2</sub>O in pyridine, acid hydrolysis with a few drops of aqueous 1M HCl in MeOH, and deacetylation with NaOMe in MeOH gave 4-O-(2-acetamido-2-deoxy- $\beta$ -galactopyranosyl)-D-glucuronic acid (II). II and  $\beta$ -D-GlcA-(1 $\rightarrow$ 3)- $\beta$ -D-GalNAc-(1 $\rightarrow$ 4)- $\beta$ -D-GlcA-(1 $\rightarrow$ 3)-D-GalNAc at 1.5 mg/mL inhibited 24.0 and 60.3% hyaluronidase, resp. A capsule formulation containing II was given. A total of 9 I were prepared

L22 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1977:565850 CAPLUS

DOCUMENT NUMBER: 87:165850

TITLE: A common reactivity of sea-squirt antigens and their acidic glycopeptide fragments to various rabbit anti-sea-squirt serums

AUTHOR(S): Oka, Satoru; Tsuji, Moriyasu; Jyo, Toshihiko

CORPORATE SOURCE: Sch. Med., Univ. Hiroshima, Hiroshima, Japan

SOURCE: Arerugi (1977), 26(6), 469-74  
CODEN: ARERAM; ISSN: 0021-4884

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The sea-squirt antigens (G-2, and E-2) (Oka, S., et al., 1977) were purified by gel chromatog. and anion-exchange chromatog., successively to Gi-2 and Ei-2, resp., which were digested by pronase E to yield antigenically active acidic glycopeptide fragments (Gp and Ep), resp. Removal of some sugar components from Gp and Ep fragments by treating with alkaline NaBH<sub>4</sub> produced antigenically active glycopeptide fragments (Gp-A and Ep-A), resp. The antigenic activity estimated by skin test of asthmatic patients with sea-squirt allergy was Gi-2 >> Ei-2 ≥ Gp >> Ep > Gp-A >> Ep-A. The immunoreactivity of those 6 antigen preps. with anti-Ei2 rabbit serum, and the anti-sea squirt rabbit serum titers during immunization with those 6 antigens approx. paralleled the antigenic activities estimated in the asthmatic patients. The common antigenic moiety was determined as a sulfated oligosaccharide attached N-glycosidically to the asparaginyl residue of the polypeptide chain. The acidic oligosaccharide moiety consisted of 3-4 mol. of glucosamine, 2-3 mol. of galactosamine, 1-3 mol. of uronic acid, 3-6 mol. of sulfate and 1 mol. of asparagine.

L10 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:844210 CAPLUS  
DOCUMENT NUMBER: 145:438828  
TITLE: Synthetic Studies of Complex Immunostimulants from  
Quillaja saponaria: Synthesis of the Potent Clinical  
Immunoadjuvant QS-21Aapi  
AUTHOR(S): Kim, Yong-Jae; Wang, Pengfei; Navarro-Villalobos,  
Mauricio; Rohde, Bridget D.; Derryberry, JohnMark;  
Gin, David Y.  
CORPORATE SOURCE: Department of Chemistry, University of Illinois,  
Urbana, IL, 61801, USA  
SOURCE: Journal of the American Chemical Society (2006),  
128(36), 11906-11915  
CODEN: JACSAT; ISSN: 0002-7863  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 145:438828

AB QS-21 is one of the most promising new adjuvants for immune response  
potentiation and dose-sparing in vaccine therapy given its exceedingly  
high level of potency and its favorable toxicity profile. Melanoma,  
breast cancer, small cell lung cancer, prostate cancer, HIV-1, and malaria  
are among the numerous maladies targeted in more than 80 recent and  
ongoing vaccine therapy clin. trials involving QS-21 as a critical adjuvant  
component for immune response augmentation. QS-21 is a natural product  
immunostimulatory adjuvant, eliciting both T-cell- and antibody-mediated  
immune responses with microgram doses. Herein is reported the synthesis  
of QS-21Aapi in a highly modular strategy, applying novel glycosylation  
methodologies to a convergent construction of the potent saponin  
immunostimulant. The chemical synthesis of QS-21 offers unique opportunities  
to probe its mode of biol. action through the preparation of otherwise  
unattainable nonnatural saponin analogs.

REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1256390 CAPLUS  
DOCUMENT NUMBER: 144:270549  
TITLE: Biochemical and immunohistochemical analysis of pectic  
polysaccharides in the cell walls of Arabidopsis  
mutant QUASIMODO 1 suspension-cultured cells:  
implications for cell adhesion  
AUTHOR(S): Leboeuf, Edouard; Guillon, Fabienne; Thoirion,  
Severine; Lahaye, Marc  
CORPORATE SOURCE: Interactions, Assemblages, INRA-Biopolymeres, Nantes,  
F-44316, Fr.  
SOURCE: Journal of Experimental Botany (2005), 56(422),  
3171-3182  
CODEN: JEBOA6; ISSN: 0022-0957  
PUBLISHER: Oxford University Press  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Mutation in the Arabidopsis thaliana QUASIMODO 1 gene (QUA1), which  
encodes a putative glycosyltransferase, reduces cell wall pectin content  
and cell adhesion. Suspension-cultured calli were generated from roots of  
wild-type (wt) and qual-1 A. thaliana plants. The altered cell adhesion  
phenotype of the qual-1 plant was also found with its suspension-cultured  
calli. Cell walls of both wt and qual-1 calli were analyzed by chemical,  
enzymic and immunohistochem. techniques in order to assess the  
role of pectic polysaccharides in the mutant phenotype. Compared with the  
wt, qual-1 calli cell walls contained more arabinose (23.6 vs. 21.6 mol%),  
rhamnose (3.1 vs. 2.7 mol%), and fucose (1.4 vs. 1.2 mol%) and less  
uronic acid (24.2 vs. 27.6 mol%), and they were less

methyl-esterified (DM: 22.9% vs. 30.3%). When sequential pectin extraction of calli cell walls was performed, qual-1 water-soluble and chelator-soluble exts. contained more arabinose and less uronic acid than weight. Water-soluble pectins were less methyl-esterified in qual-1 than in weight. Chelator-soluble pectins were more acetyl-esterified in qual-1. Differences in the cell wall chemical of wt and mutant calli were supported by a reduction

in

JIM7 labeling (methyl-esterified homogalacturonan) of the whole wall in small cells and particularly by a reduced labeling with 2F4 (calcium-associated homogalacturonan) in the middle lamella at tricellular junctions of large qual-1 cells. Differences in the oligosaccharide profile obtained after endopolygalacturonase degradation of alkali exts. from qual-1 and wt calli indicated variations in the structure of covalently bonded homogalacturonan. About 29% more extracellular polymers rich in pectins were recovered from the calli culture medium of qual-1 compared with weight. These results show that perturbation of QUASIMODO 1-1 gene expression in calli resulted in alterations of homogalacturonan content and cell wall location. The consequences of these structural variations are discussed with regard to plant cell adhesion.

REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:822052 CAPLUS

DOCUMENT NUMBER: 139:22430

TITLE: A novel strategy for the synthesis of neoglycoconjugates from deacylated deep rough lipopolysaccharides

AUTHOR(S): Mueller-Loennies, Sven; Grimmecke, Dieter; Brade, Lore; Lindner, Buko; Kosma, Paul; Brade, Helmut

CORPORATE SOURCE: Divisions of Biochemical and Medical Microbiology, Research Center Borstel, Borstel, Germany

SOURCE: Journal of Endotoxin Research (2002), 8(4), 295-305  
CODEN: JENREB; ISSN: 0968-0519

PUBLISHER: Maney Publishing

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 139:22430

AB We report a novel strategy for the preparation of neoglycoconjugates of oligosaccharides which are obtained after complete deacylation of bacterial deep rough lipopolysaccharides (LPS) isolated from recombinant Escherichia coli bacteria synthesizing a Kdo di-[ $\alpha$ -Kdo-(2 $\rightarrow$ 4)- $\alpha$ -Kdo-(2 $\rightarrow$ )] and a Kdo trisaccharide [ $\alpha$ -Kdo-(2 $\rightarrow$ 8)- $\alpha$ -Kdo-(2 $\rightarrow$ 4)- $\alpha$ -Kdo-(2 $\rightarrow$ )] of Re-type and chlamydial LPS, resp. Unlike acylated LPS, such oligosaccharides can be obtained in pure form and thus lead to well-defined neoglycoconjugates. Cleavage of the 1-phosphate of the lipid A moiety by alkaline phosphatase treatment leads to a free reducing glucosamine which can be further reacted with allylamine. After reductive amination, spacer elongation of the allyl group with cysteamine and activation with thiophosgene, the ligands were reacted with BSA. We have compared the immunol. reactivity of such defined neoglycoconjugates obtained from natural sources with those obtained by chemical synthesis and report that such neoglycoconjugates are immunogenic and well suited as antigens for the study of epitope specificities of monoclonal antibodies. In addition, we have compared these conjugates with those in which ligands were coupled by glutardialdehyde to BSA. Our approach proved to be superior since the latter led upon immunization of mice to a relatively high percentage of antibodies that reacted with glutardialdehyde derivatized BSA without the carbohydrate ligand.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT



L10 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:449938 CAPLUS  
DOCUMENT NUMBER: 133:317031  
TITLE: Immune stimulating properties of di-equatorially  
 $\beta(1\rightarrow4)$  linked polyuronides  
AUTHOR(S): Skjak-Braek, G.; Flo, T.; Halaas, O.; Espevik, T.  
CORPORATE SOURCE: Institute of Biotechnology and Institute of Cancer  
Research and Molecular, Norwegian University of  
Science and Technology, Trondheim, N-7005, Norway  
SOURCE: Proceedings of the Phytochemical Society of Europe  
(2000), 44(Bioactive Carbohydrate Polymers), 85-93  
CODEN: APPEDR; ISSN: 0309-9393  
PUBLISHER: Kluwer Academic Publishers  
DOCUMENT TYPE: Journal; General Review  
LANGUAGE: English

AB A review with 15 refs. The biol. activities of complex carbohydrates and polysaccharides have traditionally been attributed to short oligosaccharide structures. In the last decade several reports have been published suggesting that biol. activity, i.e. antitumor activity as well as the adjuvant effect of polysaccharides of various structures and origins is depending upon certain macromol. structures. The best known example is the  $\beta$ -1-3-linked glucan. We have previously found that certain alginates induce human monocytes to produce TNF, IL-1 and IL-6, and that the cytokine inducing ability depends on the mannuronic acid (M) content as well as the mol. weight of the alginate. Our data demonstrate that alginates enriched in mannuronic acid were the cytokine inducing polysaccharides whereas guluronic acid residues did not stimulate monocytes to produce cytokines. Similar effects are found for other polyuronides containing  $\beta$ -1-4 di-equatorial linked sequences. High M-alginate and lipopolysaccharide (LPS) were found to stimulate human monocytes by similar mechanism, which involved the CD14 LPS/LBP receptor. The mechanism for the interaction between the polyuronides and the cytokine producing cells will be discussed. Defined polysaccharides, which specifically stimulate the non-specific immune system, may be important agents for treatment of various infectious diseases. The potent cytokine inducing ability of  $\beta$ 1-4 linked uronic acid polymers on monocytes in vitro implicates possible interesting effects in vivo. The effect of high M alginate and C-6 oxidized cellulose in various in vivo models, ranging from bacterial sepsis in rodents to adjuvant effects in marine fishes have been tested.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:846739 CAPLUS  
DOCUMENT NUMBER: 123:225931  
TITLE: Immunomodulation using NKR-P1, CD69 and ligands therefor  
INVENTOR(S): Feizi, Ten; Bezouska, Karel  
PATENT ASSIGNEE(S): Medical Research Council, UK  
SOURCE: PCT Int. Appl., 165 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9521618	A1	19950817	WO 1995-GB321	19950215
W:	AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, UG			

RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT,  
LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE,  
SN, TD, TG

AU 9516691 A 19950829 AU 1995-16691 19950215  
CZ 296202 B6 20060215 CZ 1996-2387 19950215

PRIORITY APPLN. INFO.:

GB 1994-2890 A 19940215  
GB 1994-12952 A 19940628  
GB 1994-22584 A 19941109  
WO 1995-GB321 W 19950215

AB Monosaccharide and oligosaccharide ligands for NKR-P1 and CD69, expressed on the surface of effector cells of the immune system, including Natural Killer (NK) cells, are identified and demonstrated to be useful in enhancing and inhibiting effector function, including cytotoxicity. Effector function is enhanced when ligands are clustered, e.g. on liposomes or engineered amino acid sequences, and inhibited when the ligands are in monomeric or free form. Ligands and/or effector cells may be targeted to target cells using members of specific binding pairs, such as antibodies. Soluble forms of NKR-P1 and CD69 may also be used. The oligosaccharide comprises glycosaminoglycan, sulfide, sulfated ganglioside other than sulfatide, 6-sialyl hexose, 3-O-sulfated uronic acid, keratan sulfate, chondroitin sulfate, heparin sulfate, disaccharide, tetrasaccharide, etc.

L10 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:240946 CAPLUS

DOCUMENT NUMBER: 120:240946

TITLE: Somataglycan-S: a neuronal surface proteoglycan defines the spinocerebellar system

AUTHOR(S): Williams, Celia; Hinton, David R.; Miller, Carol A.

CORPORATE SOURCE: Sch. Med., Univ. South. California, Los Angeles, CA, USA

SOURCE: Journal of Neurochemistry (1994), 62(4), 1615-30  
CODEN: JONRA9; ISSN: 0022-3042

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The formation and maintenance of functionally specific neuronal networks may depend on specific proteoglycans localized to the surface membranes of a subset of neurons. Monoclonal antibody (MAb) 6A2 labeled a distinct subset of CNS neurons: the somas and proximal dendrites of cells making up the spinocerebellar and reticular systems. These pathways contribute to proprioceptive and exteroceptive functions. Ultrastructurally, MAb 6A2 immunoreactivity was distributed focally along the cell surface membranes and the adjacent extracellular space. On western blots of immunoaffinity-purified preps. from cerebellar homogenates, a major, broad band of .apprx.400 kDa is labeled by MAb 6A2. Increased electrophoretic mobility of the purified antigen after digestion with chondroitinase ABC and keratanase suggests that the antigen is a proteoglycan bearing chondroitin sulfate and keratan sulfate glycosaminoglycans. Unsulfated N-acetylgalactosamine residues linked to unsatd. uronic acid constituted the initial disaccharide in the chondroitin sulfate glycosaminoglycan chains. N- and O-linked oligosaccharides on the core protein were detected by the biotinylated lectins wheat germ agglutinin and Jacalin, resp., and by MAb anti-HNK-1. Lyase and glycosidase digests result in a 280-kDa band. This proteoglycan, somataglycan-S, may provide a key to the role of glycoconjugates in determining neuronal diversity and system specificity.

L10 ANSWER 7 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:81773 CAPLUS

DOCUMENT NUMBER: 116:81773

TITLE: A monoclonal antibody (ST-1) directed to the native heparin chain

AUTHOR(S): Straus, Anita H.; Travassos, Luiz R.; Takahashi, Helio K.

CORPORATE SOURCE: Dep. Biochem., Esc. Paul. Med., Sao Paulo, 04023, Brazil  
SOURCE: Analytical Biochemistry (1992), 201(1), 1-8  
CODEN: ANBCA2; ISSN: 0003-2697  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB A mouse monoclonal antibody, ST-1, was raised against heparin complexed to *Salmonella minnesota*. Characterization of this antibody showed that it recognizes an epitope in the intact mol. of heparin that is present regardless of its source or anticoagulant activity. ST-1 is the first monoclonal antibody specific for the intact unmodified mol. of heparin to be described. 3H-labeled heparin in solution was immunopptd. by ST-1, and the formation of the 3H-labeled immunocomplex was selectively inhibited by unlabeled heparin. No cross-reactivity of ST-1 was observed with other glycosaminoglycans such as heparan sulfate, chondroitin sulfate, hyaluronic acid, dermatan sulfate, and keratan sulfate, or with polyanionic polymers such as dextran sulfate. Selective removal of the N-sulfate groups or N,O-desulfation of heparin strongly reduced the binding of ST-1. Inhibition of binding was also observed after carbodiimide reduction of the carboxyl groups of the uronic acid units of heparin. Competitive assays of ST-1 binding to heparin immobilized on poly-L-lysine-coated plates using oligosaccharides of different sizes that arose from HNO<sub>2</sub> cleavage of heparin showed that the min. fragment required for reactivity of ST-1 is a decasaccharide.

L10 ANSWER 8 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1977:565850 CAPLUS  
DOCUMENT NUMBER: 87:165850  
TITLE: A common reactivity of sea-squirt antigens and their acidic glycopeptide fragments to various rabbit anti-sea-squirt serums  
AUTHOR(S): Oka, Satoru; Tsuji, Moriyasu; Jyo, Toshihiko  
CORPORATE SOURCE: Sch. Med., Univ. Hiroshima, Hiroshima, Japan  
SOURCE: Arerugi (1977), 26(6), 469-74  
CODEN: ARERAM; ISSN: 0021-4884  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The sea-squirt antigens (G-2, and E-2) (Oka, S., et al., 1977) were purified by gel chromatog. and anion-exchange chromatog., successively to Gi-2 and Ei-2, resp., which were digested by pronase E to yield antigenically active acidic glycopeptide fragments (Gp and Ep), resp. Removal of some sugar components from Gp and Ep fragments by treating with alkaline NaBH<sub>4</sub> produced antigenically active glycopeptide fragments (Gp-A and Ep-A), resp. The antigenic activity estimated by skin test of asthmatic patients with sea-squirt allergy was Gi-2 >> Ei-2 ≥ Gp >> Ep > Gp-A >> Ep-A. The immunoreactivity of those 6 antigen prepns. with anti-Ei2 rabbit serum, and the anti-sea squirt rabbit serum titers during immunization with those 6 antigens approx. paralleled the antigenic activities estimated in the asthmatic patients. The common antigenic moiety was determined as a sulfated oligosaccharide attached N-glycosidically to the asparaginyl residue of the polypeptide chain. The acidic oligosaccharide moiety consisted of 3-4 mol. of glucosamine, 2-3 mol. of galactosamine, 1-3 mol. of uronic acid, 3-6 mol. of sulfate and 1 mol. of asparagine.

L10 ANSWER 9 OF 12 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1963:477334 CAPLUS  
DOCUMENT NUMBER: 59:77334  
ORIGINAL REFERENCE NO.: 59:14451a-c  
TITLE: Immunochemical studies on pullulan, an extracellular polysaccharide from *Pullularia pullulans*  
AUTHOR(S): Schlossman, Stuart F.; Zarnitz, Marie Luise; Kabat, Elvin A.; Keilich, G.; Wallenfels, Kurt

CORPORATE SOURCE: Columbia University  
SOURCE: Journal of Immunology (1963), 91(1), 50-7  
CODEN: JOIMA3; ISSN: 0022-1767  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable

AB The bacterial polysaccharide (pullulan and restpullulan) preps. were found to be antigenic in man. Pullulan and restpullulan cross-reacted strongly with types II and IX anti-pneumococcal serums. In the type II cross-reaction pullulan was more efficient than restpullulan/unit weight, while in the type IX cross-reactions restpullulan, water-restpullulan, and partially hydrolyzed fractions of restpullulan all reacted better than did pullulan. Pullulan precipitated all of the antibody in type II antiserum cross-reacting with Friedlander B polysaccharide and most of the antibody cross-reacting with dextran. The pullulan anti-type II cross-reaction was inhibited strongly by glucuronic acid and not at all or but very slightly by various glucose oligosaccharides. The immuno-chemical findings are of interest in relation to the demonstration of a uronic acid in pullulan. The cross-reaction of restpullulan with type IX antiserum is inhibited best by nigerose and maltotriose which are considerably better than maltose. Kojibiose, iso-maltotriose, and isomaltose were much less effective. The findings are consistent with the specificity of antibody in type IX antiserum cross-reacting with restpullulan being related to  $\alpha$ -1,4-and  $\alpha$ -1,3-linked glucoses.

L10 ANSWER 10 OF 12 MEDLINE on STN

ACCESSION NUMBER: 2005626051 MEDLINE

DOCUMENT NUMBER: PubMed ID: 16263905

TITLE: Biochemical and immunohistochemical analysis of pectic polysaccharides in the cell walls of Arabidopsis mutant QUASIMODO 1 suspension-cultured cells: implications for cell adhesion.

AUTHOR: Leboeuf Edouard; Guillon Fabienne; Thoiron Severine; Lahaye Marc

CORPORATE SOURCE: INRA-Biopolymeres, Interactions, Assemblages, BP 71627, F-44316 Nantes Cedex 3, France.

SOURCE: Journal of experimental botany, (2005 Dec) Vol. 56, No. 422, pp. 3171-82. Electronic Publication: 2005-11-01. Journal code: 9882906. ISSN: 0022-0957.

PUB. COUNTRY: England: United Kingdom

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 200601

ENTRY DATE: Entered STN: 29 Nov 2005

Last Updated on STN: 21 Jan 2006

Entered Medline: 20 Jan 2006

AB Mutation in the Arabidopsis thaliana QUASIMODO 1 gene (QUA1), which encodes a putative glycosyltransferase, reduces cell wall pectin content and cell adhesion. Suspension-cultured calli were generated from roots of wild-type (wt) and qual-1 A. thaliana plants. The altered cell adhesion phenotype of the qual-1 plant was also found with its suspension-cultured calli. Cell walls of both wt and qual-1 calli were analysed by chemical, enzymatic and immunohistochemical techniques in order to assess the role of pectic polysaccharides in the mutant phenotype. Compared with the wt, qual-1 calli cell walls contained more arabinose (23.6 versus 21.6 mol%), rhamnose (3.1 versus 2.7 mol%), and fucose (1.4 versus 1.2 mol%) and less uronic acid (24.2 versus 27.6 mol%), and they were less methyl-esterified (DM: 22.9% versus 30.3%). When sequential pectin extraction of calli cell walls was performed, qual-1 water-soluble and chelator-soluble extracts contained more arabinose and less uronic acid than weight Water-soluble pectins were less methyl-esterified in qual-1 than in weight Chelator-soluble pectins were more acetyl-esterified in qual-1. Differences in the cell wall chemistry



of wt and mutant calli were supported by a reduction in JIM7 labelling (methyl-esterified homogalacturonan) of the whole wall in small cells and particularly by a reduced labelling with 2F4 (calcium-associated homogalacturonan) in the middle lamella at tricellular junctions of large qual-1 cells. Differences in the oligosaccharide profile obtained after endopolygalacturonase degradation of alkali extracts from qual-1 and wt calli indicated variations in the structure of covalently bonded homogalacturonan. About 29% more extracellular polymers rich in pectins were recovered from the calli culture medium of qual-1 compared with weight. These results show that perturbation of QUASIMODO 1-1 gene expression in calli resulted in alterations of homogalacturonan content and cell wall location. The consequences of these structural variations are discussed with regard to plant cell adhesion.